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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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THE BIDS FOR ARMOR PLATE.

The question regarding the price of armor plate has ended in a compromise between the Government and the Carnegie and Bethlehem companies. The largest contract for armor plate ever let by the United States has been divided between these two companies. The Midvale Co., which last August bid $438 per ton provided it was awarded a contract for 20,000 tons, dropped out of the controversy some time ago. Under the compromise the Government agree to pay $420 per ton for Krupp armor and holds itself liable to pay $455.52 a ton for it in case the royalty suit now pending against the Carnegie Steel Co., is decided adversely to the latter. Secretary Long last week issued the following statement:

"The Navy Department has come to an agreement with the Carnegie and Bethlehem companies for Krupp armor of the first class, amounting to 24,950 tons, for $420 a ton. The Krupp process involves the Harvey patent, the validity of which is now under consideration by the courts, and it is further agreed that the Government will assume in addition any liability for the Krupp process not exceeding £5, or $24.32 a ton for Krupp royalty, and not exceeding the United States license fee of $11.20 for Harvey royalty. The maximum price to the government is therefore $455.52 a ton, subject to diminution in case of any reduction in the forgoing royaltes. The bid of these companies for this class of armor was $490, and the priec originally asked $545.

"The Midvale company some time ago withdrew its bid, but it would have been unable in any event to furnish armor in due season for the Maine class of battleships. Had it not withdrawn its bid it is probable that some arrangement might have been made for the distribution among the three companies of the manufacture of the armor other than that of the Maine class."

The Government needs 24,950 tons of Krupp armor, which at the highest possible price will cost $9,980,346 and at the lowest $9,327,800, a difference of $653,546, the disposition of which depends upon the suit now pending in the Court of Claims. That suit was brought against the armor manufacturers and the Government by Schneider & Co., of France, who claim that the Harvey patent is an infringement on a process in use at Le Creusot works owned by them.

Secretary Long has decided to pay $400 a ton for 10,250 tons of armor of the second and third class, and the same figure for 1,620 tons of ordinary nickel armor. No agreement has yet been reached as to the price to be paid for bolts, of which 1,800 or 2,000 tons, at about $450 a ton, will be needed.

Bids for furnishing about $200,000 worth of projectiles were also opened by the War Department last week. These showed that the Firth-Stirling Co., of Pittsburg, was the lowest bidder for furnishing 500 8-inch armor-piercing shells. Its bid is $36 per shell. The other lowest bids are as follows: Five hundred 6-inch armor-piercing, Taylor Iron & Steel Co., $16; 300 12-inch common, Bath Steel Co., $72; 1,000 8-inch common, United States Projectile Co. and American Ordnance Co., tie, $24.50; 5,000 6-inch common, same companies, again a tie, $12.50; 500 3-inch common, United States Projectile Co., $2.25: 20,000 3-pounder steel, American Ordnance Co., 77 cents.

THE WORLD'S PRODUCTION OF IRON ORE AND COAL.

The following table gives the production of iron ore and coal in all countries in 1899, or for the latest year for which complete statistics are available. Coal is the principal fuel used in the production of iron and steel, and hence deserves a place in this table. Long tons of 2,240 pounds are used in giving the production of the United States, Great Britain, Canada, Cuba, India, Natal, New South Wales and other Australasia, and "other countries," and metric tons of 2,204 pounds are used for all other countries, the latter being used as the equivalent of long tons in ascertaining the total production of all countries. As far as possible the statistics given have been obtained from official sources:*

THE WORLD'S PRODUCTION OF IRON ORE AND COAL.

COUNTRIES.	IRON ORE			COAL AND LIGNITE.		
	Y'rs	Tons	Per cent.	Y'rs	Tons	Per cent.
UnitedStates	1899	24,683,173	29.47	1899	226,553,564	31.54
Great Britain	1898	14,176,938	16.93	1899	220,085,303	30.65
Germany & Luxemburg	1899	17,989,665	21.48	1899	135,824,427	18.91
France	1898	4,731,394	5.65	1898	32,356,104	4.50
Belgium	1898	217,370	.26	1899	21,917,740	3.05
Austria-Hungary	1898	3,400,485	4.06	1898	37,786,963	5.26
Russia	1897	4,107,470	4.91	1898	12,862,033	1.79
Sweden	1898	2,302,914	2.75	1898	236,277	.03
Spain	1899	9,234,302	11.03	1899	2,742,389	.38
Italy	1898	201,260	.24	1898	341,327	.05
Canada	1899	68,891	.08	1899	4,397,367	.61
Cuba	1899	368,759	.44	....	.....	.....
South African Republic	....	.....	.....	1898	1,938,424	.27
Natal	....	.....	.....	1898	387,811	.05
India	1897	43,314	.05	1898	4,136,813	.58
Greece	1898	485,159	.58	1898	17,310	.....
New South Wales	1897	234	.....	1899	4,597,028	.64
Other Australasia	....	.....	.....	1898	1,601,968	.22
Japan	1896	27,421	.03	1897	5,647,751	.79
Algeria	1898	473,569	.56	1898	200	.....
Other Countries (about)	1899	1,234,855	1.48	1899	4,849,380	.68
Total	....	83,747,173	100.00	....	718,280,179	100.00

*From Department of the Interior—U.S. Geological Survey.

ADMIRALTY APPEALS.—Proceedings under the act of Congress to limit the liability of shipowners, and the rules of the Supreme Court in that regard, are admiralty cases within the meaning of the judiciary act of March 3, 1891, § 6, making the judgments or decrees of the circuit court of appeals from admiralty cases final, from which no appeal can be taken to the Supreme Court. Oregon Railway & Navigation Co. vs. Robert Balfour et al., partners, doing business as Balfour, Guthrie & Co., et al., 21 Sup. Ct. Rep. (U. S.) 28.

IMPORTS OF IRON ORE.

The following table, compiled by the Bureau of Statistics of the Treasury Department, give the imports of iron ore into the United States during the calendar years 1897, 1898, and 1899.

IMPORTS OF IRON ORE IN 1897, 1898, and 1899.

District.	1897.		1898.		1899.	
	Long Tons	Value	Long Tons	Value	Long Tons	Value
Baltimore	292,613	$369,483	143,925	$177,764	333,258	$ 516,888
New York	309	1,272	139	440	120	703
Philad'a..	194,814	302,211	42,861	74,226	330,594	549,130
Puget S'd	1,919	5,351	.....	.....	1,912	3,746
Vermont.	21	81	29	113	1,039	2,045
All other.	294	514	139	700	7,159	10,335
Total..	489,970	$678,912	187,093	$253,243	674,082	$1,082,847

AMERICAN IRON TRADE.

Accerding to the report of James M. Swank general manager of the American Iron and Steel Association. The shipments of Lake Superior iron ore in 1899, increased 4,227,131 tons as compared with the shipments of 1898, and the shipments of Connelsville coke increased 1,669,652 tons. The production of pig iron increased 1,846,769 tons; spiegeleisen and ferromanganese, 5,999 tons; Bessemer steel ingots, 977,337 tons; open-hearth steel ingots and castings, 717,024 tons; all kinds of steel, 1,707,000 tons; structural shapes, 204,080 tons; plates and sheets, 455,204 tons; Bessemer steel rails, 293,883 tons; wire rods, 27,693 tons, and all rolled iron and steel, including rails, 1,844,027 tons. There was also an increase in the production of iron and steel cut nails in 1899 as compared with 1898 of 332,119 kegs, and in iron and steel wire nails of 181,047 kegs. The production of tin plates in 1899 is estimated to have amounted to 397,767 tons against 326,915 tons in 1898.

The exports of iron and steel from the United States in 1899, including all manufactures of iron and steel except agricultural implements, amounted to $105,689,077, against $82,771,550 in 1898 and $62,737,250 in 1897. The exports of agricultural implements in 1899 amounted to $13,594,524 against $9,073,384 in 1898 and $5,302,807 in 1897.

The imports of iron ore in 1899 amounted to 674,082 long tons, against 187,093 tons in 1898. The exports of iron ore in 1899 amounted to 40,665 long tons, against 31,579 tons in 1898. The imports of manganese ore in 1899 amounted to 188,349 tons.

The number of iron and steel vessels built in the United States in the fiscal year ended June 30, 1899, not including vessels for the Navy, was 91, with a tonnage of 131,379 long tons, against 63 iron and steel vessels in the fiscal year 1898 with a tonnage of 62,266 long tons, an increase of 28 vessels and of 69,113 tons.

THE Kenney Company has begun a suit in the Circuit Court of the United States for the Eastern District of Michigan against the Ideal Manufacturing Co., of Detroit, to restrain the infringement by the latter company of the patents of the Kenney Co. The Ideal Manufacturing Company has placed upon the market, under the name "Volunteer" a flushing valve, which is claimed to be a direct infringement of the Kenney valve, widely known in connection with the celebrated trade-mark "Flushometer". The bill of complaint in the case asks for an injunction and an accounting for profits.

CHICAGO.

Special Correspondence to The Marine Record.

The going rate at 2½ cents on corn is likely to be maintained.

Three cents was freely offered on wheat all day Tuesday for loading in November, but vesselmen were able to secure few boats to place at that figure. With favorable weather there bids fair to be a big business during early December.

By request of Supervising Inspector C. H. Westcott, of the Eighth district, U. S. Inspectors Richardson and Moore, local inspectors at Chicago, on Saturday last took the testimony of the master, chief engineer, second mate, wheelman and watchman of the steamer E. P. Wilbur, in reference to her collision with the barge Martha, on Lake St. Clair, on October 26th last.

Johnson Knudson & Co., shipbuilders, are giving the barge Massasoit new deck beams, decks and coverings, also new stanchions, stringers, covering board and rail, floor and recalking and two new pole spars, they are also giving the tug Wm. Maxwell a thorough rebuild from the water line up and will also supply her with a new boiler and have her machinery rebuilt.

Manitowoc, Nov. 29.—The survey on the steamer F. E. Spinner, which recentley was sunk by collision in the Soo, was finished to-day. Capt. Drake of Buffalo represented the insurance companies; Capt. Gibbs of Milwaukee the owners and Capt. Lindley of Chicago acted as umpire. The surveyors left for Chicago afterward and will hold a conference there tomorrow. There is a difference of opinion as to da nages. The owners place them at $15,000 and the insurance companies think they are about $10,000.

The officials of the Holland & Chicago line annouce the details of the steel passenger steamer which they are having built at the yards of the Craig Ship Building Co., in Toledo. The new boat will be ready in the spring, and will measure 240 feet in length, and 40 feet beam The engines will be triple-expansion, with cylinders 21, 34 and 58 inches in diameter, with a stroke of 40 inches. Steam will be provided by four water tube bollers, and this equipment will give the boat a speed of 18 miles an hour, it is believed. The cabin arrangements will be elaborate, and the capacity of the state rooms will be 200 persons.

Vesselmen and brokers are boycotting the grain which Phillips and his shippers in the corn corner are trying to move by lake before the close of navigation. The row over the cargoes of the Pabst and Armenia at South Chicago, which held these boats in port forty-eight hours, have made vesselmen fearful of a repetition of the troubles so late in the season, which might easily cost vessels a trip. There is a deadlock over every cargo offered, regarding grade, and it is probable that as the result very little of the corn will be moved in November. It is possible that before the boats stop running in December Phillips may get some of it from the elevators.

Andrew Crawford died suddenly Thursday afternoon, November 22d, in his office, 1016 Ashland Block, of heart failure while in conference with his partner, J. H. Graham, of the Graham & Morton Transportation Co. The deceased was born at Ayrshire, Scotland, December 1, 1831. He came to the United States when 20 years of age and settled at Genesee, Ills. He studied law and was admitted to the bar in 1858. Thirty years ago Mr. Crawford was the leading spirit in forming the steamer line and the Messenger was the first steamer owned by the company. The steel side wheel steamers City of Chicago and City of Milwaukee and propeller wheel steamer City of Louisville are now owned by them. The death of Mr. Crawford will not affect the business of the company, although his advice will be greatly missed. He leaves a widow, two sons and three daughters. The funeral was held Saturday at 10 o'clock at his residence 109 Pine Grove avenue. The interment at Genesee, Ill.

James L. Higgee died Friday, November 23d, at his residence, 4933 Ellis avenue, Chicago, of paralysis, in his 65th year. He was born at Fifeshire, Scotland, and came to Kenosha in 1847, when Wisconsin was yet a territory, and remained there 3 years employed in breaking up a new farm. In 1850 he left there and went to Racine and commenced sailing on the lakes with his brother-in-law, the late Capt. David Dall, and about 3 years later became master of the schooner Lewis C. Irwin as his first command. In 1858 he came to reside in Chicago and became engaged in the vessel agency business with the late Henry Halsted and soon became a prominent vessel owner. In 1871 he organized the Vessel Owners Towing Company, and was president of the company the greatest part of the time until 1895, when the company went out of business, and the deceased sold out his vessel property and went into the real estate business. He leaves a widow and ten children. He was a member of the Masonic fraternity. The funeral took place Tuesday morning at Rose Hill cemetery. Many old marine men attended.

DETROIT.

Special Correspondence to the Marine Record.

The matter of building a new steel steamer is to be decided by the directors of the Northern Michigan Transportation Company in January.

Capt. James L. Higgie, one of the oldest tug captains of the lakes, died Friday evening at his residence in Chicago of a complication of diseases.

F. W. Fletcher has purchased the wreck of the burned steamer St. Paul, which was abandoned to the underwriters by her owners. The work of raising her will be begun at once.

The tug John Owen has gone out to look for the derelict schooner, Alvira, which was abandoned by her crew off Sturgeon Point on Monday. The vessel is water-logged, but is loaded with lumber, which keeps her afloat. Being without lights, the derelict forms a dangerous menace to passing vessels, as she lies in the track between the upper lakes and Port Huron.

The fast new steam yacht Presto, owned by John S. Newberry, has been hauled out on the Oades marine railway and a house will be built over her for the winter. The engines and boilers have been taken out, and in the spring she will be given an entire overhauling. There is little doubt, now that the Lotus has gone, that the Presto is the fastest thing that floats on fresh water.

The movement for the improvement of the Grosse Ile American channel of the Detroit river is gathering impetus. Large property owners along the river front want to bring the matter to the immediate attention of the Michigan Congressmen. The belief prevails that a large majority of Congressmen do not understand that when they vote for appropriations for Detroit river improvement the money is expended in Canadian waters.

When the steamer North Star arrived here, Capt. Frank Stewart, her master, was carried from the boat and sent to his home in a carriage. Capt. Stewart was taken ill in Buffalo with what at first appeared to be an attack of the grip. Later he seemed to be threatened with typhoid fever and it was thought advisable to bring him to his home. It is not believed that Capt. Stewart is dangerously ill. Capt. George A. Minar of the North West is in command of the North Star this trip.

For the first time in the history of labor organization on the lakes, a conference is to be held between the managers and the longshoremen, Dec. 3, to determine the winter wage scale for ore handling and dock work. The conference will be held in the offices of M. A. Hanna & Co. Cleveland. The businesslike methods of the longshoremen during the past season have led the managers to prefer to deal with the association instead of with the men independently. More than 10,000 men are affected by the scale this year.

Capt. Frank Hackett of the tug Home Rule, which made such active attempts to rescue the crew of the schooner Maumee Valley from the vessel's rigging, declares that the schooner would not have gone on the shoal if the Canadian government had a light burning on the Dummy. He regards the Maumee Valley as a seaworthy craft before she went aground in the storm. The coal cargo of the schooner Reuben Doud, ashore on Pelee Island, will be lightered by a sand sucker. Capt. James Reid has the work. The Doud lies in seven feet of water and has five feet of water in her hold.

The propeller Ogemaw and consort Kate Darley were chartered to bring lumber from Ashland to Detroit for Kotcher & Co. Bad weather was encountered all the way, and they were three weeks on the trip. On the arrival there they found the lumber had been shipped, as it could not wait, and there was nothing to do but strip there for the winter. However, they will be on the ground for a load of lumber in the spring at rates much higher than will prevail later on; so, as they will have that advantage of lumber craft laid up below and bound up, what they have lost on this trip they will to some extent make up at the opening of navigation.

Capt. C. E. Fuller, of the steamer E. P. Wilbur gives an account of that vessel's collision with the schooner Martha, differing in many points from the statement prepared by the attorneys for the owners of the latter boat in the libel suit now pending. He claims that the steamer Mariposa, towing the Martha, was coming down the center of the channel; that the Wilbur and the Troy, which was abreast of her, passed to the east of the Mariposa, and that the schooner was then seen to be to the eastward of the center of the channel. Seeing that he could not turn out to starboard because of the nearness of the Troy, nor go between the Mariposa and her consort, Capt. Fuller says he attempted to check, but found his vessel unmanageable. In support of his statement he cites the fact that, after sinking, the Martha lay in the middle of the channel. It is argued that, as the force of the Wilbur's bow striking her on the port side would naturally, under the circumstances, have driven her to the westward, she must have been in the position stated, and right in the Wilbur's course. "I'm not worrying about the suit," said Capt. Fuller. "I did the only thing I could and that will be plainly shown in court.

Supt. Kimball of the life-saving department says the stations on the upper lakes will probably be closed about December 1, but that those on Lakes Erie and Ontario may be kept in commission until the middle of December.

BUFFALO.

Special Correspondence to the Marine Record.

The tug Queen has been sold by Capt. J. Suter, to George C. Boldt, of New York. The price paid was $4,900. The tug will be taken to Cape Vincent.

Captains of incoming boats report that the gas buoys at Southeast shoal and the Middle ground at Pelee Passage have been taken in and they are loud in their dissatisfaction over the action of the Canadian government in removing these aids to navigation while boats are so generally running.

There seems to be but little hope for the vesselmen in the grain blockade here. Each boat will be delayed from five to fifteen days, according to which house she is consigned, is the consensus of opinion. The railroads are badly congested, and until the cars arrive more freely the boats must line up and wait.

The survey on the steamer F. E. Spinner, which recently was sunk by collision in the Soo, has been completed. Capt. Drake, of Buffalo, represented the insurance companies; Capt. Gibbs, of Milwaukee, the owners, and Capt. Lindley, of Chicago, acted as umpire. The surveyors left for Chicago and will hold a general meeting there. There is a difference of opinion as to damages. The owners place them at $15,000 and the insurance companies think they are about $10,000.

Steamer Wilkesbarre, built at the Union Dry Dock Co.'s yard for the Lehigh Valley line, will be launched on December 1. As soon as she in the water the keel for the Mauch Chunk, a sister ship, will be laid. It is said that a new 400-foot steamer will follow for the Union Transit Co. The two Buffalo drydocks are now consolidated and the major portion of the workmen are at the Buffalo Shipbuilding Co. This gives the concern four dry docks, one 487 feet long, two 350 feet long and one 300 feet long. William Watterson, formerly of the Ship Owners' Dry Dock Co., of Cleveland, is appointed superintendent under General Manager Edward Gaskin.

The schooner Chicago Board of Trade, which went on Niagara reef last Wednesday, has broken up on the unlucky shoal, in the prevailing high seas. On sighting signals the steamer Secor managed to land alongside, and take aboard the crew. The steamer Schutte has been engaged in lightering the ill-fated vessel of her cargo of coal. The rescued crew consist of Capt. Bonnah, of Port Huron; Jonas Hayes, of Chicago; Richard Baxter, of Marinette; William Moore, of Port Huron; William Demster, of Toledo; T. W. Reville, of Coleman; and the cook, Annie Ryan, of Buffalo. The boat is one of the oldest on the lakes. She is a Toledo craft, and one of the last of the old guard. Lafe Sullivan, of Toledo, is her owner. The vessel is insured.

The great storm of Tuesday played havoc with the outer harbor breakwater, causing a loss estimated by Major Thomas W. Symons, United States Corps of Engineers, at $200,000. The full effect of the hurricane on the harbor improvements was not known until late yesterday, when Major Symons returned from an official inspection of the new Government breakwater. The government engineer in charge of the work was almost amazed at the extent of the storm's fury. Whole sections of the wall were displaced and entirely washed away, some sections being washed ashore on the south beach, all broken, twisted, and shattered. This latest injury to Buffalo's new $4,000,000 outer harbor-protecting wall, following so closely upon the injury wrought by the September gale, has set back the work of completing the whole extension one entire season, it is stated by contractors and marine men. After viewing the damage done by the storm of Tuesday, Major Symons gave a rough estimate of the loss at about $200,000, and declared it would take six months to repair the damage.

Early last session Representative Alexander, of Buffalo, was asked to have the west channel of Niagara river marked with lights or beacons, to be located on Canadian territory and along the west side of Grand Island. The Light-House Board, in charge of all such matters, could not take action until after Col. Alexander had secured from the Canadian government its consent for such marking. The consent was secured through Secretary of State Hay, and then came a long discnssion of the best methods of marking. The request had been for targets along the shore, but the Light-House Board suggested that spar buoys might be better, so the matter was left for the Board to finally determine. Congressman Alexander has just received from the Board a letter announcing the decision, which is that the spar buoys will be placed early next spring, and if not found satsfactory, replaced later by the shore targets or beacons. As all the commerce of Niagara river goes through the west channel, all interested in that commerce will be glad to know that the Buffalo Congressman has succeeded in arranging for the marking of that channel.

The gas buoys in the Pelee Passage have been ordered in by the Canadian government, according to advices received from William Anderson, in charge of the marine and fisheries department of the Canadian government. This will make it difficult for boats to pass there at night from now on. This is drawing the lines down sooner than has been done in the history of the lakes for years back. The report has it that the lights at the Straits will not be taken in until about December 10, but the owners will soon find that the beacons have been withdrawn so generally that boats will be forced for their own protection to proceed by daylight, as they did late last fall, or stop entirely.

CLEVELAND.

Special Correspondence to The Marine Record.

Last year fish to the value of more than a million dollars were obtained on Lake Erie.

The contractors who are rebuilding the west arm of the breakwater, the Hunkin Bros , have quit work for the season. This year they have progressed far enough to warraut the statement that what remains to be done can be finished in another season of navigation.

Mr. C. H. Crane of the firm of Lewis & Crane, the Pacific Coast lumber dealers, located at Seattle, Washington, was in the city this week. Mr. Crane reports business in a very satisfactory state and is well pleased with the outlook. He will visit New York and other eastern ports before returning home.

The Cleveland & Buffalo Transit Co. announces its schedule for next year. Some big changes will be seen in the regular running time of the boats, occasioned by the heavy business expected from the Pan-American Exposition at Buffalo. The schedule provides that the steamers shall leave Cleveland each night at 8 p. m. and reach Buffalo at 6 a. m. During the months of July and August the trips will be doubled, and the steamers will leave at 8 a. m. and reach Buffalo at 6 p. m. During the months of July and August the steamer City of the Straits will leave Cleveland on Tuesdays, Thursdays and Saturdays at 5 p. m. and will arrive at Buffalo at 5:50 a. m.

The friendly feeling between Captain Leander Brogan, local manager of the Great Lakes Towing Company, and the men who operate the boats, was shown this week. Captain Brogan has been working with the men for several years, and his kindly treatment of them and consideration for them at all times has bound them together with a very strong cord. On Sunday morning wheu Captain Brogan reached the office the men were waiting for him and by a short and well-directed address the leader presented him with a diamond riug, the stone being of the purest and the setting exquisite. The representation was heartily entered into by each individual in the employ of the company.

Regarding the story sent out from Chicago that the Rockefeller boats are to run all winter from Chicago to Buffalo John A. McGean, local manager of the Bessemer Steamship Co., said yesterday afternoon: "What is expected of us—that we shall run all through January on a two-cent basis? What we would like to do and what we can do are two entirely different things. The history of the lakes, if one did not know the conditions, would argue against such a course. Boat property is too valuable nowadays to run it up against a stone wall for two cents a hundred pounds on grain. I don't believe we want to try it." This puts to rest another stirring rumor that has been afloat of late. It was expected that both the Rockefeller and Carnegie fleets would give the all-rail lines competition on grain carrying during the winter by putting a protective armor on their boats and making ice crushers out of them, thus enabling them to break through the lakes at times during the winter. The open winter of last year may have suggested the feasibility of such a course, but the boat managers do not take that as a criterion by which all winters may be judged.

General Manager James Wallace of the American Ship Building Co., says that officials of the company are now considering plans of a type of very large vessel for salt water service that would be built on the lakes in two parts and be put together at Montreal. Mr. Wallace is of the opinion that if the shipping bill is passed lake shipyards would find opportunity to build at a profit quite a large number of vessels in this way. In any event, he says, the lake yards will have considerable to do in building vessels of St. Lawrence canal dimensions for Atlantic coast trade if the stocks are not refilled with lake orders in the spring. It is the intention of the International Transportation Co., owners of the steamers Paraguay and Asuncion which have just gone to the coast, to build on the lakes a large fleet of such vessels, the keels to be put down as soon as places are found for them. Mr. Wallace and President W. L. Brown of the consolidated lake yards are interested with Mr. A. B. Wolvin and others in the International company. The Paraguay has reached the works of the Eastern Ship Building Co., New London, Ct., where she is being equipped for Atlantic coast service. The Asuncion will also be fitted out at the New London works. These vessels will engage in the general coastwise trade.

No work was done on the coal or ore docks on Thanksgiving day, and it could not be learned that any chartering was done. All hands seemed to take a rest and considerable turkey was no doubt consumed. Coal carriers are in good demand, and vessels are scarce. Local shippers offered 75 cents freely Wednesday to Lake Michigan ports and as far as known that is the best rate that has been paid, although it is claimed at Detroit that four boats were placed at $1 co. The Milwaukee Evening Wisconsin, Wednesday, said: That the rate for loading next week will be $1.00 per ton there is not the slightest doubt, and it may even go higher. Shippers of soft coal from Ohio ports are at present paying 75 cents per ton to leading Lake Michigan ports, and that they are prepared to pay more was made evident yesterday afternoon by a dispatch to W. H. Mack, one of the owners of the steamer Pascal P. Pratt, offering $1.00 per ton for a return trip to Lake Michigan, the steamer to load next week. The Pratt left Milwaukee for Escanaba, where she is to load ore for an Ohio port. With this rate established on bituminous, shippers of anthracite must come up also if they wish to secure vessel room, and it will not be surprising if they see fit to go their Ohio brethren one better by boosting the rate a notch higher, or above the $1.00 mark. Local owners are holding for $1.00, and they are quite confident that that figure will be paid, but it is a pretty sure thing that the rate was not advanced to that mark Wednesday. According to a dispatch from Buffalo the hard coal men will ship until the middle of December if the weather is favorable.

DULUTH—SUPERIOR.

Special Correspondence to The Marine Record.

The cut rates for the transportation of freight for copper country points proves to have been one of the most bitter and consistent fights of rail against lake that has ever been known in this section. Last spring the Duluth, Sou h Shore &Atlantic road put in a cut rate on grain products and feed to copper country points in northern Michigan, and other commodities were affected also. It was a rate which made the Lake Michigan & Lake Superior Transportation and the Howard Transportation companies feel as if the business was poor, but they had to stand it, and they have done so. The boat lines put in a porportionally low rate. This was last May. It was said at the time that the rate probably would be advanced to tariff in a few weeks. But the weeks rolled into months and the months have almost counted out the season of 1900, and yet the rate is maintained. There has been no sign of a truce and people interested in the situation are wondering what will happen next year in south shore transportation circles after navigation opens.

Upon the decision of the steamboat inspection authorities in the case between Walter W. Wood, mate, and Tracy Warren and Fred Lee, engineers on the tug Castle, hangs the fate of unionism in the Licensed Tugmen's Protective Association, which embraces practically all of the tug captains and engineers on the Great Lakes. These men have agreed not to work on boats where the pilots and engineers are not all members of the organization. The local steamboat inspectors have disagreed over the matter, and it will probably be taken before the higher officials and will most likely end in the office of Inspector General Dumont at Washington. Walter W. Wood was hired as mate and pilot of the tug Castle, and at that time Tracy Warren and Fred Lee were employed in the engine room. When they found that Wood was not a member of the organization and would not join, they refused to work with him. Wood at once charged them with a conspiracy and began proceedings before Local Steamboat Inspectors Monahan and Chalk to have their licenses revoked. The men defended themselves by declaring that they could not work with Wood because of their oath of membership in the Licensed Tugmen's Protective Association. Inspector Monahan decided that signing such an agreement was contrary to the oath on which the engineer's licenses were issued, and that Warren and Lee were guilty of conspiracy to hinder commerce. Inspector Chalk holds, however, that there has been no showing made that the engineers refused to do their duty and he disagreed entirely with his fellow inspector. The Licensed Tugmen's Protective Association was organized last winter, and in its ranks are almost all of the tugmen on the lakes, it is claimed. The firemen and linemen organized a similar association and the two have worked together. The principal rule has been the one over which the local inspectors have differed, that no member of the association will work on a boat where all members of the crew do not belong to the two organizations. This rule has been strictly carried out up to the present time. The associations have adopted several reforms in the working conditions of the men, and they have been adopted generally along the lakes, making the work uniform in all the ports. Uniform rules as to towing was also put into effect. Duluth was the scene of the only serious dispute over these rules, when Capt. James Davidson last summer objected to paying for two tugs on some of his barges. The men at that time compremised the matter, but it is thought they will not willingly disregard the union rule now up for settlement.

VESSELS CLASSED.

Vessels classed and rated by the American Bureau of Shipping in the "Record of American and Foreign Shipping:"

Screw, Californian; screw, Sonoma; screw, Sunbeam; ship, W. F. Babcock; bark Mauna Ala; schooners, Eleanor A. Percy, St. Croix, Fannie Palmer, Van Allens Boughton. Fred. A. Small, George H. May, Ulrica R. Smith, Harry W. Lewis, Republic, Isaiah K. Stetson, Luis G. Rabel, Pendleton Sisters, Margaret May Riley, S. M. Bird, M. A. Achorn, Melissa A. Willey; British three-mast schooners Canada, Grequeland and Evadne, British half brig Aquila.

MARINE PATENTS.

Patents issued November 20, 1900. Reported especially for the MARINE RECORD. We furnish complete copies of patents at the rate of 10 cents each.

661,986. Combined range finder and turret. Bradley A. Fiske, New York City.

662,067. Serpentine Boat. James Gresham, New York City.

662,330. Means for controlling water balast in ships. Geo. B. Willcox, Bay City, Mich.

662,522. Propeller for boats. Samuel H. Butterworth, Philadelphia, Pa.

662,829. Apparatus for arresting the motion of navigable vessels. Henry Simpsom, Liverpool, England.

FLOTSAM JETSAM AND LAGAN.

Williamson Bros., the well-known builders of steam steerers, etc., have recently been incorporated and the house now bears the name Williamson Bros.' Co. The company has removed from their old place and now occupy new and more commodious quarters at Aramingo avenue and Cumberland street, Philadelphia. This concern has furnished the majority of steam steering engines used on vessels in this country and their hoisting engines are celebrated from one end of the land to the other. They are made with either frictional spur or worm gear of various patterns to suit all purposes. Other specialties made by the company are the Williamson straight tube evaporators, and all classes of auxiliary ship machinery.

The names of four of the men lost on the schooner Maumee Valley, which was pounded to pieces on the Pelee middle ground, have been ascertained. They are Capt. Henry Scanlan, of Toledo; William Smith, mate, of Chicago; Harry Spain, sailor, Toledo; and Jack O'Brien, nowhere. Besides these she carried three unknown sailors shipped at Toledo. Capt. Scanlan lived at No. 703 Norwood avenue, Toledo. He bought the schooner a year ago, paying about $4,000. His mother and relatives advised against the step, because of the great age of the craft, but she had caught his fancy, and nothing could change his purpose. He was unmarried and lived with his aged mother, of whom he was the sole support. Two weeks ago he wrote a letter home from Buffalo. He told about getting on the rocks at the mouth of Detroit river, but reached Buffalo all right. He said he would take home a load of coal, "if I ever get there." He was fifty-five years old, had sailed the lakes thirty years or more, and had a good name as a careful master. Spain was a single man and lived with his sister and brother-in-law, Mrs. and Mr. Richard Gibbons, No. 115 Millard avenue, Toledo. Smith, the mate, left a widow and three children in Chicago, with but a small property between them and destitution.

The announcement of the abandonment of the Stannard Rock light is a sufficient warning to mariners to be very watchful of the welfare of their craft when they are sailing in the vicinity of this rock, particularly if they are out in heavy weather. There could be only one outcome of a disaster on Stannard Rock—complete and utter annihilation. Capt. Chambers reports that in all his experience on the lakes he has rarely been through such a protracted spell of rough weather as has marked his residence at the light during the last couple of weeks. He says that storms have raged almost incessantly. Anyone acquainted with Stannard Rock understands that these conditions mean ice and lots of it. Capt. Chambers and the members of his crew, as well as the tugmen who ran out to the rock on the Theora, assert that they left a wilderness of ice at the light. It was unusual both in extent and weight and the embarking of the crew was attended by no little difficulty. Take it all in all, it was very fortunate that the rock was abandoned, as the chances are that there might have been considerable delay in getting the men off if the beacon had been continued in operation until the first of the month. According to Capt. Chambers' report, the last two or three days of comparatively calm weather have been in marked contrast to a period of high winds and seas, during which it would have been impossible for the tug to approach the rock.

LETTERS AT DETROIT MARINE POST OFFICE.

November 28, 1900.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Ackley G. M., Ericsson	Kennedy Wm.
Boomer M., Wilhelm	Lowes S.
Bell Geo.	Merritt Jno., Italia
Beauvis Della	Mitchell Harry
Brown Wm. W., Atlantic	Mulholland C., 126
Bassett E. H., Briton	Martin T. R.
Bradley H. E., T. W. Palmer	Moore Willie
Collins John	McQuarrie Dan, Argo
Durfey Samuel, 107	MacKenzie ——, Hamilton
Dorland Wm., Tampico	McDonald Grafton
Edmondson Harry	Peaton Wm., German
Fauell Jno., German	Pipher Annie
Fleming Richard	Rose Frank W., Hackett
Gracey Annie, Marengo	Riley T. J., Marina
Gorman Mary, 2	Radigan Roy
Huddle W. R.	Spath Jno , Tioga
Henry W. S., 2, Bermuda	Sauve Jos., Livingstone
Johnson Martin, Tuxbury	Shipley Harry, Pueblo
Jewett Ruth	Trumble Wm. A.
Jones Sherman, German	Wilson Geo. B.
Kelly Sarah	

F. B DICKERSON, P. M.

IN 1899 the United States made 13,620,703 long tons of pig iron, 7,586,354 tons of Bessemer steel ingots, 2,947,316 tons of open-hearth steel, and 10,639,857 tons of steel of all kinds, and rolled in all 10,357,397 tons of finished iron and steel, including rails; there were also shipped in the same year, 18,251,804 long tons of Lake Superior iron ore and 10,129,764 short tons of Connellsville coke.

A PLEA FOR THE COMMERCIAL FREEDOM OF THE UNITED STATES.

CHICAGO, ILL., November 20, 1900.

I have this week received the following:

The tendency and universal demand of the world at the present time calls for increased transportation facilities. The giant locomotive and the car are the present ideal for the rapid haulage of finished products, but the large modern vessel, carrying from 10,000 to 20,000 tons, is the most economical means for transporting raw material and bulk freight for long distances. If the United States is to acquire and maintain the manufacturing and commercial supremacy of the world, it must have both the most rapid and the most economical transportation, and will be compelled to follow the example set by Canada in the reconstruction of the Welland canal and the improvement of the St. Lawrence river, now the only available route for American ships from the Great Lakes to the Oceans, and must immediately deepen and improve the great rivers and channels within the United States to form adequate modern ship waterways between the Great Lakes and the Oceans.

Russia, Germany, France and other world powers, since the completion of their railroad systems, have recognized the supreme importance of economical transportation for raw materials, and the inadequacy of the railroads for this purpose, and have inaugurated great systems of modern ship canal construction and river improvement, in order to compete in the markets of the world.

The British Islands, penetrated by large rivers and surrounded by deep water, have the best natural water transportation facilities and the largest marine commerce in the world, yet the city of Manchester, England, alone, with a population of less than 500,000, although it had the best of railroad facilities, overcame great obstacles and devoted $75,000,000 to the construction of a ship canal 40 miles in length, giving it direct connection with the ocean, through Liverpool. The city of Manchester and the district adjacent to the canal, since its completion, have already greatly increased their business, population and wealth.

The returns to the City of Chicago and the adjacent district, from the construction of the sanitary and ship canal, although the expenditure of money has been much less, will be correspondingly great when the canal is opened for navigation, and when this waterway is finally extended to the oceans it will be of incalculable benefit, not only to the United States, but also of great benefit to all nations.

It is estimated that it will cost the United States from $150,000,000 to $500,000,000 to construct either the Nicaragua or Panama canals. The cost of maintaining and defending either of these canals will also be enormous.

To complete the drainage and ship canal, improve the Illinois and Mississippi rivers so as to receive either the largest lake or ocean vessels, and form a connecting link between the Great Lakes and the Gulf of Mexico, will cost the United States but a small part of the cost of either of the above canals, and the cost of maintenance would be trifling as compared with the cost of maintaining or defending either the Nicaragua or Panama canals.

The difference in the cost of an adequate waterway from the Great Lakes to the Gulf of Mexico and the cost of constructing, maintaining and defending either the Nicaragua or Panama canals, would leave a sum of money sufficient to construct equally large ship canals connecting the Great Lakes with the Hudson river and the Atlantic ocean, wholly within the United States.

The improvement of the Columbia river, the Missouri river and the Mississippi river, and the construction of a connecting ship canal between the Columbia and the Missouri rivers, adequate for the largest naval or merchant vessels, would be of far greater value to the United States than either the Nicaragua or Panama canals, or any other canal in a foreign country, and its cost of construction would probably be less than the cost of construction, maintenance and defence of either the Nicaragua or Panama canals.

The construction, maintenance and defence of either the Nicaragua or Panama canals by and at the expense of the United States, before the development of the necessary internal water communications of the United States and the development of the merchant marine of the United States, would be a philanthropic act too great to be expected of even the most wealthy nation, as other nations with a more highly developed merchant marine would reap the greatest benefits, and the United States would lose its opportunities and prestige, and other nations would be enriched at the expense of the people of the United States.

England and other foreign nations now transport more than 90 per cent. of the enormous exports and necessary imports of the United States, which exceed those of any other nation. The people of the United States are commercial dependents of these foreign nations, and in time of war are especially at their mercy. The giant fleets of the United States on the Great Lakes are helplessly bottled up. The only outlet for the vessels of the United States from the Great Lakes to the ocean is under the control of and at the mercy of England, and even this outlet is only available for small vessels. Large vessels can only be transported through this outlet in sections, and must afterwards be reunited, as was the case with the United States revenue cutter Gresham during the Spanish war.

It is deplorable that the greatest and wealthiest republic that ever existed should be so dependent and helpless. Commercial independence from foreign nations is as desirable for a great republic as political independence, and can only be acquired by the United States by the development of the merchant marine of the United States and its rapid substitution for foreign ships on the oceans.

The only and most rapid solution for the United States is to construct an adequate ship canal from the Great Lakes to the Gulf of Mexico or the Atlantic Ocean, wholly within the United States. Then the present large vessels and fleets on the Great Lakes, now idle during the winter, will immediately and prosperously transport our foreign commerce. The additional ships that will be necessary to displace foreign vessels can then be rapidly and economically built not only on the coast of the United States, but also on the Great Lakes, near the largest and purest iron ore and coal deposits on earth, and these new vessels can also immediately engage in our foreign commerce without asking the consent of any foreign nation, and establish the commercial freedom of the United States.

The railroads of the United States would never have obtained their present state of development, were it not for the land grants and fostering care of the government in their infancy. From the beginning of railroad construction in the United States in 1830, to the present time, 190,000 miles have been constructed, 100,000 miles of which have been constructed during the last 20 years, and a large part of the old mileage has been reconstructed and improved during this brief time.

Equally great results can be achieved in ship canal construction in the immediate future. The barge canals advocated by Washington a century ago to cross the Alleghany Mountains were gigantic enterprises for the limited resources of his era. The construction of a ship canal, even across the Rocky Mountains, is not too great an undertaking for the resourses, wealth and genius of the people of the United States at the present time.

The people of the United States have performed and are capable of great and rapid achievements. From 1860 to 1865, they sacrificed 600,000 lives and $4,000,000,000 for the principles of freedom and union. Only $50,000,000 expended yearly for 10 years by the government of the United States upon the great natural rivers, channels and connecting ship canals within the United States, will forever bind together all the states and the people of the United States into one great financial, industrial and commercial union, of mutual interest, more firm than any purely political union could possibly be.

The Canadian government has recognized the fact that the ancient 200 to 300 ton barge canal is obsolete and only builds modern ship canals, which the United States is now generally permitted to use in times of peace.

The wisdom of our great statesmen will recognize the tendency of the times and the needs of the United States for improved inland transportation by water, and will solve this great problem at a per capita expense trifling compared with the necessary large per capita expenditures of Canada for this purpose, without injury to the railroads and to the infinite benefit of all of the people, industries and railroads of the United States, by the construction of large, modern and adequate ship canals and the improvement of all the great rivers of the United States on a large, comprehensive and harmonious plan, and give to the United States a supremacy in this direction which it has attained by the wise action of the government in developing our great railroad systems.

The largest part of the money expended upon the Nicaragua or Panama canals, or any other foreign canal, would necessarily go to foreigners, while the money expended for the improvement of the waterways within the United States would go back to the people of the United States, who pay for the improvements, would give healthful employment to American labor, and would develop the ingenuity, resources and wealth of all the people of the United States. The problems and difficulties to be overcome in building a ship canal 30 feet deep, entirely within the United States, are not greater than those for a similar waterway in Nicaragua or Panama.

The United States has achieved great victories through the efficiency of the military officers and the bravery and patriotism of the soldiers at the service of its War Department. The War Department, through the corps of engineers, has rendered great service in the improvement of the rivers and harbors of the United States, and when supplied with the necessary funds will achieve correspondingly greater and more rapid results for the development of the inland water communications of the United States.

After the United States has improved all its great rivers and constructed the necessary ship canals within its borders, equal to or greater in capacity than any proposed foreign canals to be built at the expense of the people of the United States, it will have, compared with other nations, unequaled facilities and resources, and will acquire and maintain the industrial, commercial, shipping and civilizing supremacy of the world.

The United States will be the most highly developed and the wealthiest nation of the earth, and will be the most powerful factor in maintaining peace among nations and peacefully extending civilization, and will be enabled to further advance the progress, prosperity and ultimate unity of all mankind.

The differences between nations will then be adjusted peaceably, as are now adjusted the differences between individuals, cities, counties, principalities and states. It may then be the high mission of the United States to also construct, maintain and defend either the Nicaragua or Panama Canals, or some other ship canals in foreign territory, and generously grant to all nations equal privileges in the use thereof.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, report the condition of the eastern freight market as follows:

In consequence of less pressing offers of tonnage freights for prompt vessels, especially for large steamers with grain to picked ports have somewhat improved and owners are momentarily holding for still a further advance, whilst freights for more distant vessels have not appreciated and no demand exists for boats suitable for the Cork f. o. trade. We cannot yet report a revival of enquiry for tonnage at the Atlantic cotton ports and the demand at the Gulf ports, whilst far from pressing, has latterly shown some activity in respect to steamers for Denmark only. Time boats for the transatlantic trade are now obtainable at a trifle under 5s. on vessel's dead weight capacity, but without much enquiry at this reduced figure. Whatever unfilled commitments for coal may still be on the market it is impossible to precise, as shippers of late have kept very quiet and allowed but little enqniry to appear.

The business in sail tonnage during the past week has been light and confined for the most part to charters to the Colonies at the lately reduced rates. The demand is not very lively but on the other hand the offerings of suitable vessels are likewise sparse and rates in consequence show no further decline. Nothing has been done to the East, shippers as well as owners apparently playing a waiting game.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	2,977,000	460,000	447,000	119,000	1,239,000
Chicago	12,134,000	1,685,000	3,373,000	639,000	68,000
Detroit	456,000	82,000	93,000	59,000	19,000
Duluth	5,972,000	79,000	583,000	212,000	333,000
Fort William, Ont.	1,254,000	.....	.....	.....	.....
Milwaukee	831,000	64,000	245,000	7,000	32,000
Port Arthur, Ont.	120,000	.....	.....	.....	.....
Toledo	1,268,000	715,000	1,112,000	26,000	1,000
Toronto	66,000	.....	2,000	.....	192,000
On Canals	315,000	224,000	263,000	.....	281,000
On Lakes	2 804,000	1,661,000	130,000	.....	729,000
On Miss. River	.....	.....	.....	.....	.....
Grand Total	62,261,000	8,704,000	11,769,000	1 326,000	3,559,000
Corresponding Date, 1899	5 ,936,000	11,572,000	5,917,000	1,498,000	3,556,000
Increase	.....	276,000	.....	.....	273,000
Decrease	100,000	.....	1,063,000	45,000	.....

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

A TYNE-BUILT SHIP FOR CANADIAN WATERS.

The steel screw steamer Donnacona, which ran her trial trip off the Tyne on the 1st inst., is in many respects a vessel of unique type, and of somewhat peculiar appearance for an English-built ship.

She was built by Messrs. Wood, Skinner & Co., of Bill Quay-on-Tyne, for the Hamilton and Port William Navigation Co., and is intended primarily for traffic on the lakes, specially designed for that trade. She is classed with the British Registry of Shipping, and is 255 ft. long by 42 ft. 6 inches in breadth, with a moulded depth of 23 ft. 8 inches. She is designed to carry 2,650 tons on a draught of 16 ft. 5 inches, and will be able to navigate the Welland canal, which joins the lakes with the river St. Lawrence. She has triple expansion engines of about 1,000 horse-power, supplied by the North-Eastern Marine Engineering Company, and on her loaded trial attained a speed of nearly 10 knots. She is the second of two vessels built to the order of this company in Great Britain, and the first of her type turned out on the Tyne, being fitted either for the deep sea or lake trade. She is specially designed for carrying coal, grain, and ore between Lake Superior and Lake Hamilton and Montreal, and, loaded to a draught of 14 ft., will be able to navigate the canal system of Canada, which by reason of recent improvements, now affords sufficient depth of water to permit of direct navigation for vessels of that size between the lakes and the open sea. During the winter, pending the opening of navigation with the St. Lawrence, the vessel will be employed in the European trade.

After her trial trip the Donnacona proceeded on her first voyage to Barcelona with a cargo of coals. On the trial the builders were represented by Mr. James Skinner and John Wood; the owners by Mr. A. B. Mackay, who has been on Tyneside some time in connection with the business of his company; the engine builders by Mr. J. Dalgleish, and there were also present Mr. Hugh McIntyre, owners' superintendent; Mr. J. Fraser MacDonald, of the British Registry of Shipping, with which the vessel is classed; and Mr. C. Cockburn. After luncheon had been partaken of Mr. Skinner, on behalf of the builders, proposed "Success to the Donnacona," and hoped that she would be found a stauch ship, capable of holding her own against any on the Great Lakes. He did not fear but that she would stand any weather she had to face, and he trusted she would prove a good money-making machine. Mr. Mackay responded on behalf of the owners, and made an interesting speech on the development of Canadian trade with this country, in the course of which he said that there was no boat so completely fitted for the trade on the Canadian lakes as the Donnacona, which also had the advantage of being a salt water ship, and would be able to run direct from the old country to the heart of her greatest colony. He pointed to the growth of Canadian exports, and said that the carrying trade had been mainly done by Americans hitherto, but now they hoped, by such ships as the Donnacona, to have a larger share in the traffic. He was glad to see that large shipowners like Messrs. Elder, Dempster & Co. were developing the Canadian trade, and hoped that English shipbuilders would always be able to build boats suitable for that trade. If so, they would get plenty of business. He concluded by proposing the toast of the builders and engineers of the ship.

LIFE SAVING APPLIANCES.

Sec. 4488. Every steamer navigating the ocean, or any lake, bay, or sound of the United States, shall be provided with such numbers of life-boats, floats, rafts, life-preservers (line-carrying projectiles and the means of propelling them) and drags, as will best secure the safety of all persons on board such vessel in case of disaster; and every sea-going vessel carrying passengers, and every such vessel navigating any of the northern or northwestern lakes, shall have the life-boats required by law, provided with suitable boat-disengaging apparatus, so arranged as to allow such boats to be safely launched while such vessels are under speed or otherwise, and so as to allow such disengaging apparatus to be operated by one person, disengaging both ends of the boat simultaneously from the tackles by which it may be lowered to the water. And the board of supervising inspectors shall fix and determine, by their rules and regulations, the kind of life-boats, floats, rafts, life-preservers, (line-carrying projectiles and the means of propelling them) and drags that shall be used on such vessels, also the kind and capacity of pumps or other appliances for freeing the steamer from water in case of heavy leakage, the capacity of such pumps or appliances being suited to the navigation in which the steamer is employed.

Sec. 4489. The owner of any such steamer who neglects or refuses to provide such life-boats, floats, rafts, life-preservers, (line-carrying projectiles and the means of propelling them) drags, pumps or appliances, as are, under the provisions of the preceding section, required by the board of supervising inspectors, and approved by the Secretary of the Treasury, shall be fined one thousand dollars.

Sec. 5344. Every captain, engineer, pilot, or other person employed on any steamboat or vessel, by whose misconduct, negligence, or inattention to his duties on such vessel, the life of any person is destroyed, and every owner, inspector, or other public officer, through whose fraud, connivance, misconduct, or violation of law, the life of any person is, destroyed, shall be deemed guilty of manslaughter, and upon conviction thereof before any circuit court of the United States, shall be sentenced to confinement at hard labor for a period of not more than ten years.

THE WORLD'S PRODUCTION OF PIG IRON AND STEEL.

In the following table is given the production of pig iron and steel in all countries in 1899 or in the most recent year for which statistics have been received. English tons of 2,240 pounds are used for Great Britain, Canada, the United States and "other countries," and metric tons of 2,204 pounds for all other countries, metric tons being used as the equivalent of English tons in ascertaining the total production for all countries. The statistics of steel production for the United States, Great Britain, France, Belgium, Austria-Hungary, Russia and Finland, Sweden, Spain and Canada embrace ingots and direct castings, but for Germany and Luxemburg and Italy complete ingot statistics are not available and the statistics for finished steel have been used.*

THE WORLD'S PRODUCTION OF PIG IRON AND STEEL.

COUNTRIES.	PIG IRON.			STEEL.		
	Y'rs	Tons	Per cent.	Y'rs	Tons	Per cent.
UnitedStates	1899	13,620,703	34.56	1899	10,639,857	39.25
Great Britain	1899	9,305,319	23.61	1899	5,000,000	18.44
Germany & Luxemburg	1899	8,142,017	20.66	1899	6,290,434	23.20
France.....	1899	2,567,388	6.51	1899	1,554,354	5.73
Belgium.....	1899	1,036,185	2.63	1899	729,920	2.70
Austria-Hungary...	1898	1,427,240	3.62	1896	880,696	3.25
Russia and Finland....	1898	2,222,469	5.64	1898	1,494,000	5.51
Sweden.....	1898	531,766	1.35	1898	265,121	.98
Spain.....	1899	295,840	.75	1899	122,954	.45
Italy.....	1897	8,393	.02	1898	94,667	.35
Canada.....	1899	94,077	.24	1899	22,000	.08
Japan.....	1897	57,678	.15	....	.....	.....
Other Countries (about)	1899	100,925	.26	1899	15,997	.06
Total.....	....	39,410,000	100.00	....	27,110,000	100.00

*From Department of the Interior—U.S. Geological Survey.

In tables that we have heretofore published we have given the world's probable total production of pig iron in 1800 as 825,000 long tons; in 1830 as 1,825,000 tons; in 1850 as 4,750,000 tons; in 1870 as 11,900,000 tons; in 1880 as 17,950,000; in 1890 as 27,157,000 tons; and now we give the total production in 1899 as 39,410,000 tons, of which the United States made 34.56 per cent.

From the most trustworthy sources of information that were available more than twenty years ago we then estimated the world's production of steel in 1878 as amounting to 3,021,000 long tons. Subsequently we estimated the production in 1889 as amounting to 10,948,000 tons. The figures given in the above table show that the production had increased in 1899 to 27,110,000 tons, of which the United States made 39.25 per cent.

TOTAL PRODUCTION OF IRON ORE.

Previous to 1870 no iron ore statistics for the United States are complete. The figures for 1870 and 1880 are for the census years ending on May 31. For 1889 (also the census year) and all subsequent years they are for calendar years. The statistics since 1889 have been compiled by John Birkinbine for the United States Geological Survey.

TOTAL PRODUCTION OF IRON ORE SINCE 1870.

Year.	Long tons.	Year.	Long tons.
1870.....	3,031,891	1894.....	11,879,679
1880.....	7,120,362	1895.....	15,957,614
1889.....	14,518,041	1896.....	16,005,449
1890.....	16,036,043	1897.....	17,518,046
1891.....	14,591,178	1898.....	19,433,716
1892.....	16,296,666	1899.....	24,683,173
1893.....	11,587,629		

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD.)

Actual Total Loss of Part.—The jury cannot be permitted to pass on the question of actual total loss on a marine policy, when a large part of the goods reach their destination in specie, and a substantial part of them are wholly uninjured. Washburn & Moen Manufacturing Co., vs. Reliance Marine Insurance Co. (Limited), 21 Sup. Ct. Rep. (U. S.) 1.

Constructive Loss.—The construction of a policy of marine insurance, depending on questions of general commercial law, as a matter on which courts of the United States are at liberty to exercise their own judgment, and are not bound to accept the decisions of the courts of the state in which the contract was made. Washburn & Moen Manufacturing Co. vs. Reliance Marine Insurance Co. (Limited) 21 Sup. Ct. Rep. (U. S.) 1.

Effect of State Decisions.—An insurer which has stipulated in the policy that its acts in recovering, saving, and preserving the property in case of disaster shall not be considered an acceptance of abandonment cannot be deemed to accept an attempted abandonment of the goods by carrying them from a place where there is no agent of the assured, no adequate means of protection, and no market, to the port of destination where there are excellent facilities for protecting and handling them, easy access to the head agency of the assured, and a good market. Washburn & Moen Manufacturing Co. vs. Reliance Marine Insurance Co. (Limited), 21 Sup. Ct. Rep. (U. S.) 1.

Maritime Liens—Creation—Debts—Contracts with Independent Contractor.—Where an independent contractor for the repair of a vessel contracts debts for material and work required for repairing it, his contracts for such debts give no lien to the material and work men on the vessel, under Code c. 81, giving "a lien for material supplied and work done for the repairs of any steamboat in preference to any other debts due and owing from the owners thereof," nor do they bind the owners, since such contractor is not the agent of the owner, but holds an adversary relation to him respecting the power of contracting debts for the repairs. Valverde vs. Spottswood, 28 So. Rep. (Miss.) 720.

Shipping—Injury of Cargo from Defective Refrigerator—Limitation of Liability by Bill of Lading.—An agreement in a bill of lading for dressed meats to be transported across the Atlantic, that the carrier shall not be responsibe for any loss or damage arising from breakdown or injury to the ship's refrigerator or its machinery, even though arising from defect existing at or previous to the commencement of the voyage, is one which is competent for the parties to make, and it relieves the carrier from liability or loss resulting from such causes unless negligence is shown, and the burden as to that issue rests upon the skipper, as the express contract modifies and superseded the implied warranty of the fitness of the vessel and her apparatus for the service undertaken which would otherwise arise. The Southwark, 104 Fed. Rep. (U. S.) 103.

Collision—Moored Vessel—Evidence Considered.—While a tug was moored in the proper position at the east and river front of a dock, a coal steamer and her consort unloaded in a slip at the north side of the dock, each in turn being tied up on the outside of the tug, from which direction a fresh wind was blowing, while the other unloaded. Immediately after they had gone, the tug began to list, and, later, sank, and it was found that her timbers had been freshly broken. No other vessels had been at the dock. Held, that the circumstantial evidence afforded by such facts, supplemented by the testimony of witnesses who claimed to have seen one or the other of such vessels strike against the tug while being maneuvered, was sufficient to sustain a finding that the injury was caused by the steamer or her tow, either by collision with the tug when approaching or leaving, or by pounding against her while tied up, notwithstanding the contrary testimony of their officers and crews. The P. H. Birkhead, 104 Fed. Rep. (U. S.) 110.

Shipping—Lien for Inland freights—Construction of Charter.—A charter for a vessel provided that "the master shall, if required, give his draft on consignees, payable 3 days after arrival, for whatever inland railway charges are collectable from receivers of cargo as shown on bills of lading and manifest, subject to the usual charges of one per cent. commission and cost of insurance; and the draft shall be a lien on the vessel and her freight." While the vessel was loading and after she was loaded a considerable quantity of cargo shipped on through bills, on which there were inland charges, both she and the cargo on board were so badly damaged by fire which occured on the wharf that the voyage was abandoned, and the vessel and cargo undestroyed were sold in a suit for salvage charges. No drafts for inland freight had been required of the master previous to the fire, and none given, and a demand therefor afterwards made was refused. Held, that under such provision there was no lien on the vessel for inland freight, unless a draft therefor had been given; that the conditions had been so changed by the fire that such drafts were no longer demandable, because the charges for inland freights were no longer "collectable from receivers of cargo," and it was against such collections, to be made by the vessel for a commission, that the drafts were to be drawn; nor could the insurance required to be furnished at the cost of the charterer for the protection of the vessel be then effected. Neall et al vs. General Marine Ins. Co. of Dresden, 104 Fed. Rep. (U. S.) 92.

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CLEVELAND, O., NOVEMBER 29, 1900.

THE WORLD'S NEED OF COAL, AND THE UNITED STATES' SUPPLIES.

It is about thirty-five years since Professor Jevons predicted that, by the end of the century, England's commercial and industrial supremacy would be checked by inabilty to supply the ever-growing demand for fuel. The coal which gave her economic dominion—which, more than iron, was the basis of her material power—was even then evidently exhaustible. With its disappearance, apparently, her wealth and power would decline. Trade expansion, spreading further and faster than seemed possible to the most sanguine a third of a century ago, has hastened the condition upon which Professor Jevons based his sinister prophecy. But in the meantime other factors—material, economic, and political—have entirely changed the problem. New countries have opened up not only new markets for consumption, but new sources of supply; improved transport, particularly by sea, has brought far-off shores practically nearer than the distant portions of our own land; and above all, a broadened understanding of national and international relations has drawn the whole world closer and is ever enforcing the concept that the great storehouse of the world is a common one—that the funds of material, of energy, even of human skill and handicraft, are in reality and inevitably a joint possession, which it is the duty and destiny of mankind to utilize and to distribute to the uttermost for the good of all. The new world, which supplied to the overburdened old world first room and opportunity to labor, then bread and clothing, now opens to the underfed furnaces, mills, and workshops of Europe, almost limitless stores of the coal and iron which are the prime material necessities of modern life. These will prove as life-giving and as little to be considered menaces to England's prosperity as were the wheat of the prairies or the cotton of the Southern States.—Editors of the Engineering Magazine.

Coal is heavy, both specifically and in its aggregate annual tonnage. It is by long odds the greatest item of the freight traffic on American railroads, constituting one-fourth of the total tonnage, and if we omit the duplication of tonnage resulting from the transportation of one shipment over two or more lines of railway, it will be found that coal constitutes one-third of all the traffic moved in the United States. And although all indications now point to the fact that American progress toward the achievement of a great international coal trade will be steady and continuous, yet at the same time those who are concerned in the industrial progress of the United States need not fear that the exportation of coal will result in a diminished supply at home and increased prices for the fuel needed by manufacturers. Taking up the coal fields of the United States as a whole—that is to say, the bituminous coal fields, with which alone exporters are concerned—it will be found that from the Atlantic to the Mississippi the country is well supplied; and though the quality gradually deteriorates as one progresses from east to west, it so happens that each section is (or can be) supplied with suitable coal from its own fields.

In spite of continued efforts to increase the efficiency of engines and boilers, the progress of invention is such that coal is becoming each year a more and more important article of commerce. So short a time ago, viewing the history of the world, as 1831, the annual coal production of Great Britain was 24 million tons; for the year 1901 the coal production will probably be 240 million tons—an increase of 1,000 per cent. In 1831 the population of Great Britain was 24 million, and the next census, 1901, will probably show about 40 million in that county—an increase of 66⅔ per cent. in 70 years. Therefore the production of coal has increased from one ton per capita to six tons, and the rate of increase has been 15 times as great as the rate of increase in population. The earliest statistics of coal consumption in the United States are very incomplete—in fact, prior to 1860 the output can only be guessed at; but such figures as are available show that in the United States, as in Europe, the increase in the use of coal has been phenomenal. In 1840 the production of bituminious coal in the United States was between one million and two million tons, and the production of anthracite was one million tons—say a total of 2½ million tons. At that time the population of the country was 17 million, so that there was probably less than one-sixth of a ton used annually, per capita.

Compare that with the present tonnage of 220 million and a population of approximately 75 million, and it will be seen that America is now using, per capita, eighteen times as much coal as she did sixty years ago. In fact, since 1890 the per capita increase has been 50 per cent. In that year, and for some time prior thereto, the coal requirements of the average community could be stated at two tons per person, but now three tons is the average for the country at large, and in all large places, except the southern cities, the average is above that.

First and foremost of the factors leading to this great increase in coal requirement has been the growth in the railway mileage at home and abroad. Such progress has now been made in the building of large locomotives that, counting in all the engines laid up for repairs, those temporarily in the shops, those in switching service and similar light duty, and those regularly employed on the road, it is found that some 1,600 tons of coal per annum are required for each locomotive in the company's service, on the presumption that the coal is of good quality and that the number of engines owned is great enough to make an average practicable. No more than ten years ago the average coal requirements of a locomotive did not exceed 1,000 tons a year. As there are now 40,000 locomotives in the United States and Canada,* it will be seen that at least 64 million tons of coal are annually required in this line of business, with the chances greatly in favor of a tonnage exceeding that amount. In fact, it has been claimed that one-half of the bituminous product of the United States (say 90 million tons) is used by railways and steam vessels.

It is plain to all who give the matter more than passing interest that coal has come to the front, that it is in great demand the world over, and that the United States is, at present, the coal cellar of the world. That it will also become the coal seller of the world at an early date is a matter capable of mathematical demonstration.

Coal has always been high-priced in England. With the great prestige in manufacturing that the British people had for two generations in this century, their manufacturers were ready and willing to pay high prices for their fuel. High prices were charged, and even though the business was conducted in a most crude and costly way, great fortunes were made by the coal proprietors of England, Scotland and Wales. Properly conducted, the operations should have been comparatively economical, for the coal could have been easily obtained. From the year 1600 to date, 10,000 million net tons of coal have been extracted from the limited areas of Great Britain, and it has come to such a pass that the high prices hitherto prevailing are absolutely required to meet the expenses of production and transportation, for now it is necessary to go deeper into the ground. Thinner seams have to be worked, the more attractive deposits having been exhausted. All the entries now are long, comparatively few new mines having been opened in Great Britain in the last ten years.

*The large Canadian lines buy in the United States.

A moment's thought will make it plain that underground haulage and hoisting are enormously expensive methods of transportation, and that a certainty that these factors will increase in importance every day, as the coal industry grows older, makes it plain that the United States' coal fields, almost untouched as many of them are, grow steadily in advantage as regards the supply of the world. Generally speaking, there is not a coal mine in the seaboard bituminous regions from which coal has to be hoisted. It can in every case be drawn out in cars, sometimes up a grade, it is true, but quite as often the cars run down grade. Then, too, the American mines are generally new. All devices are contrived with the view of handling a large tonnage as economically as possible, and the present shipper of bituminous coal is not hampered by arrangements made years ago, when trade requirements were less important. Very notable, too, have been the arrangements made by the railway companies for the transportation of coal. The roads leading into the coal regions are solid and substantial, with grades and curves modified as far as the formation of the country will permit, and over them are operated trains of fifty 50-ton cars, drawn by huge slow-steaming locomotives. Owing to the allowance for extra weight generally permitted, the cars are often loaded to nearly 10 per cent. more than their marked capacity, making a consignment of 2,700 tons moved to market at one trip.

Having seen that there is an abundance of coal in the United States, and that the facilities for transporting it to tide already exist, we find at present but limited facilities for ocean transportation. At this time, when the requirements of the United States government for transports to the East Indies and the West Indies have retired many American vessels from commercial pursuits, and when the great requirements of the British government for transportation to South Africa have taken 3,000,000 tons of vessel tonnage from the market, and general business activity has made miscellaneous freight plentiful for all vessels, it must be confessed that the average coal man—the owner of a few comparatively small mines—is at a decided disadvantage in regard to supplying the great export demand; but in so far as the large producing companies are concerned the question is by no means serious. Having ample resources, they will boldly start in and build vessels designed expressly for coal carrying. It has been ascertained, by interviews with gentlemen thoroughly well posted in the shipbuilding and shipping business, that a vessel having a cargo capacity of 7,000 tons would be best suited for this line of business, and that a speed of ten knots is the most economical for such a vessel. Faster time means more coal burned, and slower time means fewer trips per year; so that ten knots, which in practice will allow for one round trip across the Atlantic and back each month, is found to be the most desirable speed.

It has been calculated by a careful compilation of figures that the expense of operating a 7,000-ton steamer to such an accessible port as Gibraltar would be such as to make a total cost of but 80.4 cents per ton for the actual transportation of the coal. Upon this basis the American product could be put in foreign markets at rates that would make competition simply impossible. Coal could be placed at Cardiff, the greatest coal-shipping port in the world, for $3 less than the present wholesale selling-price at that place, even supposing that the vessel was destined to return empty, and the producer doubled the above-mentioned freight. Yet that is an extreme instance. It is not probable that an American producer would offer the coal at such a close margin, but he would seek to compensate himself for his expenditure incurred in the development of foreign trade by adding a dollar or two per ton to the cost price abroad, as determined by cost, insurance, and freight. Even on this basis, which gives him a $14,000 margin on a single cargo, there is $1 in favor of the United States seller at Cardiff, and nearly as much at every other port in the northern portion of the eastern continent; and when it comes to supplying the trade of South Africa and South America, both important, there is also some 2,000 miles of sea travel.

Unfortunately there are but few shipyards in the United States capable of building 7,000-ton vessels. The reduction in the price of iron and steel during the present year, the improvement of facilities to meet the home demand, and the undiminished strength of the foreign demand, all combine, however, to strengthen the interest of American producers in the export trade; and undoubtedly the building of steam colliers will soon commence at all the shipyards capable of such work.—F. E. Saward, in The Engineering Magazine (Abstract).

FAREWELL OF COL. JARED A. SMITH.

The farewell reception given by the Chamber of Commerce and other prominent citizens of Cleveland to Col. Jared A. Smith, who for nine years has been United States engineer at this port, was a well deserved compliment to an able and faithful officer, whose services to Cleveland, and to the whole of the lake district under his supervision, have been greater than those of any of his predecessors.

Col. Smith came here nine years ago under trying and discouraging circumstances. Cleveland harbor affairs were in a very unsatisfactory condition and the engineer's office here stood discredited as a consequence of the court-martial which made the vacancy Col. Smith was assigned to fill. His first step at once restored confidence in the office. He announced his intention to attend strictly to the duties of his position, with no other purpose than to conserve the interests of the government on the one hand, and advance those of the port and the navigation and commerce of the district on the other. In the latter the strictest impartiality would be observed, while all requests and suggestions would be courteously received and considered, with regard at all times to the general interest and his obligations to the government.

How well he has carried out that program during his nine years of service here was shown by the unaminous and hearty approval of the Chamber of Commerce meeting on Monday night and the general regret at his removal to another post of duty. The harbor itself is the best testimony to his engineering skill, his indefatigable energy, his devotion to duty, and his anxious care for the advancement of the commercial and navigation interests of the district under his charge. The plans he made are not yet all carried out, but they have the approval of his superiors, and his successor, Col. Mansfield, is in hearty sympathy with them.

Col. Jared A. Smith found the engineer's office here in a condition of disorder, inefficiency, or worse; he has evolved system out of disorder and brought the office to a high degree of efficiency. He found the harbor neglected and the government work decaying; he has made a new harbor, with work in progress for its extension, and everything that has been done or is projected is on a permanent basis. The best that can be wished for his new post of duty is that he may be as useful to it as he has been to Cleveland.

Col. Mansfield the new United States engineer in charge, could have no higher recommendation to the district than his expressed approval of all that Col. Smith has done and his promise to work along the same lines.—Cleveland Plain Dealer.

THE FIRST SHIP OF THE BRITISH NAVY.

The first ship, properly speaking of the British Navy, known as the Great Harry, was built by King Henry VII. at a cost of £14,000, and was burned at Woolwich, through accident, in 1553. By his prerogative, and at his own expense, he laid the foundation and settled the constitution of the present royal navy. An Admiralty and Navy Office were constituted and commissioners were appointed by him; regular salaries were settled not only for the admirals and vice-admirals, but for his captains also and seamen, and the sea service at that time became a distinct and regular profession. Henry it was, too, who founded the Deptford, Woolwich, and Portsmouth Dockyards and the Trinity-House.

Having entered into a league against France, Henry fitted out a fleet, under the command of Sir Edward Howard, Lord High Admiral. In the engagement which took place between the French and British fleets in August, 1512, the Regent, a ship of 1,000 tons, which was at that time the largest vessel in the British Navy, was burned, and, to replace it, the Great Harry, or, as it was also known, the Henry Grace de Dieu, was built in 1515. The vessel appeared to be of about 1,000 tons burden, and was manned by 349 soldiers, 301 mariners, and 50 gunners. She had four masts and port-holes on both decks and in other parts. Before the time of her construction the cannon were placed above deck and on the prow or poop. One Decharges, a French builder, at Brest, is said to have invented port-holes. In a list of the British Navy, as it stood on January 5, 1548, the Great Harry is said to have carried 19 brass and 103 iron pieces of ordnance. The name of the ship is supposed to have been changed in the reign of Edward VI. to The Edward, which, on August 26, 1552, was reported to be still "in good case to serve," and was ordered "to be grounded and calked once a year to keep it tight." No subsequent notice of the ship has been met with in the British naval annals.—From Cassier's Magazine for December.

BRITISH SHIPPING.

H. E. Moss & Co., Liverpool, sum up the British shipping condition as follows:

Since the issue of our last semi-annual Steamship Circular, we are pleased to be able to report that our anticipations as to the prosperity of the shipping trade have been more than amply realized, for the present year has been, without a doubt, a record year, and shipowners have reason to look back upon 1900 with feelings of gratitude.

The successful termination of the war in South Africa has released from our Government service a large amount of tonnage, all of which has been absorbed in other directions, without the great depression in freights which many anticipated. This in itself is the most healthy sign we could hope for, and if, as is expected, the Chinese difficulties are soon settled, and commerce once more resumes its normal course in South Africa and China, to say nothing of the very great expansion of trade in all other directions, we venture to express an opinion that for some time to come shipowners may look forward to a continued run of prosperity. There will be occasional set backs, as may be naturally expected, but taking the present indications as a whole, and the demand existing for steamers, especially on time charter, and for periods extending in many instances over some years, we think there is nothing to be alarmed at in the near future, although freights may not rule as high as they have recently been.

The cost of shipbuilding has continued to advance by leaps and bounds, until now we may say it is at least 40 per cent. above the price of four year ago. Within the last twelve months the advance has been quite 10 per cent. Nearly all the builders, with few exceptions, have orders on hand to last them until the end of 1901; indeed, several well-known firms are full up until even a later date. Such being the case, we do not look forward to any very serious declension in the cost of construction for some time; and when there are any indications, the rush of orders for new tonnage may be so great that those builders then open will be again quickly filled up, and many owners who are waiting for the long-expected opportunity of placing cheap contracts may have to wait on for some time longer, as they seem to forget the increase of population throughout the world, and the necessary expansion of trade.

The demand for tonnage, both new and second-hand, has been unprecedented. New steamers approaching completion have been sold at very great profits, and enormous sums have been realized by those fortunate owners who had the courage to place their contracts ahead. The demand for second-hand tonnage is equally great. Large numbers of steamers have changed hands for both British and foreign account, especially for Germany and Spain, which latter conntry has recently become one of our principal customers. The profits realized on such sales have been very large, in some instances approaching 30 to 40 per cent. upon the original cost, and the demand for all kinds of tonnage is as great as ever, the supply beiug quite inadequate.

LLOYD'S WRECK RETURNS.

Lloyd's returns, giving the number, tonnage, and nationality of vessels lost, etc., during the quarter ending June 30, gives details in regard to 37 steam vessels, totaling 87,602 gross tons, and of 100 sailing vessels, equaling in all 54,487 tons. In regard to the percentage of their steam tonnage lost, the French were the heaviest losers, their 6 vessels of 13,858 tons representing 1.32 per cent. of their total steamship gross capacity. Austria, Denmark, and Spain are fortunate enough to have no entry in this list, in which the lightest loss stands to the credit of America, the two steamers, together equal to 568 tons, lost by that nation representing but .06 per cent. of the steam tonnage flying the Stars and Stripes. Though the 29 British steamers of 44,786 tons represent slightly more than half of the entire losses given in these lists, they amount to only .39 per cent. of our enormous steam tonnage. Of all the steamers lost 26, of 45,736 tons, are entered as "Wrecked," while 2 only come under the terrible designation of "Missing." Nine steamers owe their loss to collision, while 12 others were broken up. With their sailing ships the Dutch were most fortunate, as they had no losses to record; and next to them were our Colonial brethren, whose 3 ships of 1,076 tons mean a loss of .28 per cent. of their sailing tonnage. The largest loss, pro rata, occurred amongst Danish ships, the figures being 9 ships of 3,013 tons, or 2.82 per cent. of all Denmark's sail tonnage. Austria was the next most unfortunate, for though her loss was but 1 ship of 568 tons, it accounted for 1.99 per cent. of her total sailing tonnage. Of the sailers lost 43 per cent. were wrecked, 16 per cent. were abandoned at sea, and 15 per cent. reported as missing.

AN ORE UNLOADER.

Three ore unloaders, the only ones built are now complete upon the Carnegie docks at Coneaut harbor. Next season it is expected that they will be at work and with the recent improvements which have been made to them they will probably prove a great success.

Nearly two years ago work on the machine of this kind was begun on Carnegie's docks. The inventor is George H Hulett of Akron, O. Mr. Hulett went to Conneaut and superintended its construction. When the first one was completed and tried it was seen that some changes and improvements were necessary, now all three, in an improved form, are ready to be placed in operation at the beginning of the season 1901.

The total weight of each one of the automatic unloaders is 400 tons. The great "clam shell" bucket which reaches in after the ore will grasp and raise ten ton at one time. The average amount lifted by the ordinary ore buckets of the past have been about one ton a lift, and these one ton buckets have to be filled by a force of shovelers in the hold of the vessel.

The "clam shell" is attached to a revolving pending leg. After being lowered to the ore in the vessel, this great shovel is operated by hydraulic power. When full it is raised above the vessel and carried to a point over the stock piles or over a car and dumped by opening the bucket.

It is estimated that this machine can take out from 90 to 95 per cent. of a vessel's cargo. This, of course, does away with the work of many men. It requires but six men to operate one of these machines. All three of the machines can work in a vessel at the same time. Each one it is expected, will be able to take out 300 tons of ore per hour. When this speed can be attained the unloading of one of the largest vessels will require but a few hours.

NOTICE TO MARINERS.

DOMINION OF CANADA—ONTARIO.

ROCK REPORTED IN NORTH CHANNEL LOCATED.—The neighborhood of Robertson rock, north of Clapperton island, North channelof lake Huron where a small rock was reported by the lightkeeeper at Clapperton Island, was examined by Mr. W. J. Stewart, of the Canadian Hydrographic Survey, on the 20th October. The rock reported by Mr. Baker proved to be the southeastern extremity of the ridge of which Robertson rock is the shoalest head, and is shown on the Admiralty charts.

When the red spar buoy, marking Robertson rock, is placed on the opening of navigation next year, it will be removed to the southeast extremity of this ridge, which is the point of the shoal nearest to the channel.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT HOUSE INSPECTOR,
ELEVENTH DISTRICT, DETROIT, MICH., Nov. 28, 1900.

Notice is hereby given that the Stannard Rock Light-Station, Lake Superior, was closed November 26, 1900.

The light and fog-signal will not be in operation again until the opening of navigation, 1901.

Notice is hereby given that the additional gas buoy which was placed in the 20 ft. dredged channel, Lake St. Clair, Mich., to mark the edge of the channel opposite the wreck of the steam barge Martha, has this day been discontinued.

By order of the Light-House Board.

J. C. WILSON, Commander, U. S. Navy.
Inspector 11th Light-House District.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., November 27, 1900.

CHICAGO OUTER BREAKWATER (N. W. END) LIGHT-STATION.—Notice is hereby given that on or about December 8, 1900, the light will be changed from fixed white to fixed red, at this station, on the northwesterly end of the outer breakwater, Chicago harbor. No other change will be made.

WIND POINT (RACINE POINT) LIGHT-STATION.—Notice is hereby given that on or about December 8, 1900, a siren operated by compressed air will be established at this station, on Wind Point, westerly side of Lake Michigan, to sound, during thick or foggy weather, blasts of 3 seconds' duration separated by silent intervals of 27 seconds, thus:

Blast	Silent interval	Blast	Silent interval
3 sec.	27 sec.	3 sec.	27 sec.

The fog signal building is a buff brick structure located about 160 feet northeasterly from the light-tower.

On the same date the 10-inch steam whistle heretofore sounded at this station during thick or foggy weather will be discontinued.

Attention is invited to the differences between the characteristics of the new and the old signal.

By order of the Light-House Board.

FRANCIS J. HIGGINSON,
Rear-Admiral, U.S. Navy, Chairman.

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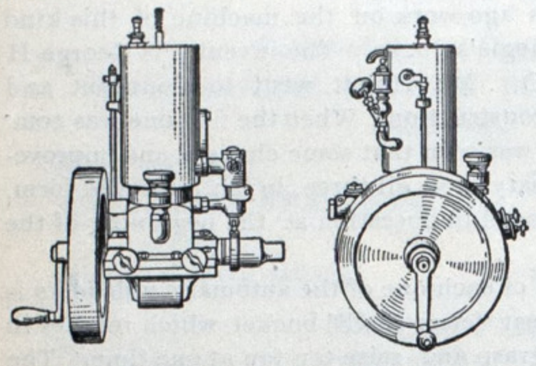

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CORRECTION OF ALTITUDES FOR CHANGE OF DECLINATION.

The last century has been barren in nautical-astronomical improvements; it has not been able to avail itself of all the opportunities a starry sky offers for observation, to find the exact position of a vessel at sea, because of the lack of exact formulæ and methods. Simultaneous observations of different objects to find latitude and time were not known or practiced, the only attempt at combination being double altitudes of the sun; all other objects, moon, planets and stars being excluded for want of precision of methods. But, even within this narrow limit, nothing has been accomplished to insure correct results, the change of the declination of the observed object being the principal obstacle.

In the first half of the last century, navigation rested on the laurels of the preceding one, with Douves' method and the method of five arcs in the ascendancy. But as both methods ignore the change of the declination during the interval between observations, the exact latitude cannot be found by them. In the second half of the last century, Sumner's method, with its offspring, the method by lines of position, came into existence, designed to remedy defects, but introducing a sometimes far greater error than the error caused by neglecting the change of the declination, by substituting straight lines for curves, to find the place the ship is in Thus, in determining position at sea, vessels are having the choice between two evils, of which nobody is prepared to tell which is the greater one.

All these defects and restrictions of double altitude methods for a single object are removed at once by correcting altitudes for change of declination.

In the spherical triangle between object, zenith and pole, a change in the pole distance or declination causes a change in the zenith distance, hour angle and the third side, co-latitude remaining constant. By drawing a parallel of altitude through a point of the pole distance indicating the change in the declination, a small right-angled triangle is obtained, the hypotenuse of which equals the change of the declination, and the distance between object and parallel of altitude represents the change of the zenith distance, or altitude, due to the change of the declination. As the angle n at the object is obtained by the formulæ:

$$\sin. n = \frac{\text{sin. co-lat.} \times \text{sin. azimuth}}{\text{sin. pole dist.}}$$

$$= \frac{\text{cos. latitude} \times \text{sin. azimuth}}{\text{cos. declination}}$$

The correction of altitude = change of declin. × cos. n, using in the formula for sin. n the declination for the moment of observation.

The correction is to be added to the first altitude when pole distances decrease, and to be subtracted from it when pole distances increase. For the second altitude the sign of the correction has to be reversed.

As an approximate value of the latitude is always known from the latitude by account, and as the true azimuth is obtained from the compass azimuth by applying variation and deviation, an approximate value of the correction is easily found to start the reckoning for latitude with. By applying this correction and the correction for run to the altitude to be corrected, always using the declination for the respective moment of observation, the defects of the older double altitude methods mentioned before are removed at once, as may be seen from the following example:

Example: May 4th in 52° 33′ N. lat. and 34° 16′ W. long. by D. R. altitudes of the moon were taken, from which the following true altitudes were obtained. Time noted by a chronometer which was slow oh. 33m. 24s. on Greenwich mean time. In the interval between observations course made good N.E. true 21.4 miles per hour, bearing of first altitude S. 21° 9′ W. true; find the latitude at the second observation.

CHRONOMETER.			TRUE ALTITUDES.			
h.	m.	s.	°	′	″	
11	14	28	50	21	23	W.
2	39	37	27	40	16	W.

(See the MARINE RECORD of June 21 last.)

At second observation lat. by D. R. 53° 24.7′ N.

At first and second observation:

	h.	m.	s.		°	′	″	
Moon's R. A.	11	21	53.40	Dec.	15	20	0	N.
	11	28	25.42		16	20	0	N.

Difference of hour angles 49° 47′ 40″

½ = 24 53 50

$$\sin. n = \frac{\text{cos. } 52° 33' \text{ sin. } 21° 9'}{\text{cos. } 15° 20'}$$

n = 13° 9′; consequently,

Cor. of alt. for decl = 60′ cos. 13° 9′ = 58′ 26″

Cor. of alt. for run — 1° 6′ 58″

First true alt. by observation 50 21 23

Corrected first true altitude 50° 12′ 51″

with which and the usual data the reckoning is to be carried out.

a. Latitude by Douves' Method

First alt.	50°	12′	51″		
Second alt.	27	40	16		
Sum	77°	53′	7″	½ = 38°	56′ 34″
Diff.	22	32	35	½ = 11	16 18
	38°	56′	34″	cos.	9.890853
	11	16	18	sin.	9.291040
	24	53	50	cosec.	0.375726
					9.557619
16°	20′	0″	sec.	0.017891	
53	25	0	sec.	0.224760	
					0.242651
Middle time	39°	9′	0″	sin.	9.800270
H. E. T.	24	53	50		
Hour angle	14	15	10	Rising	8.488262
				— above	0.242651
					8.245611
50° 12′ 51″			n sin.	0.768443	
				0.786047	n cos. 38° 10′ 57″ N.
				Moon's Decl.	16 20 0 N.
				Latitude	54° 30′ 57″ N.

REPETITION.

				As above	9.557619
16°	20′	0″	sec.	0.017891	
54	30	57	sec.	0.236223	
					0.254114
	40°	24′	32″	sin.	9.811733
	24	53	50		
Hour angle	15	30	42	Rising	8.561386
					0.254114
				0.020290 . .	8.307272
				above	0.768443
				0.788733	n cos. 37° 55′ 51″ N.
				Moon's Decl.	16 20 0 N.
				Latitude in	54° 15′ 51″ N.

By abbreviation formula:

$$\text{Cor. of assumed latitude} = \frac{65.95^2}{81.05} = 53' 40''$$

Assumed latitude 53° 25′ 0″ N.

True latitude in 54° 18′ 40″ N.

b. Latitude by the Method of Five Arcs.

24°	53′	50″	cosec.	0.375726		
16	20	0	sec.	0.017891	sin.	9.449054
Arc I 23°	49′	44″	cosc.	0.393617	sec. 0.038695	0.038695
38	56	34	cos.	9.890853	sin. 9.798336	
11	16	18	sin.	9.291040	cos. 9.991541	
Arc II 22	6	12	sin.	9.575510	sec. 0.033151	
Arc III 43	20	18			cos. 9.861723	
Arc IV 72	5	44			cos. 9.487749	
Arc V 28	45	26	sec.	0.057166		
	Arc II		sec.	0.033151		
Lat. N. 54°	18′	55″	cosc.	0.090317		

Comparing results, we have:

a. By Douves' method. . . . . 54° 18′ 40″
b. By five arcs method 54 18 55
c. By a circuitous method (see RECORD mentioned above). 54 19 29

the mean value of which is 54° 19′ 1″ being the correct value.

Without the correction for change of declination, Douves' method and the method of five arcs give the latitude 55° 4′ 24″, being 0° 45′ 23″ in error.

Considering results, *the great practical value of the correction of altitudes for change of declination*, can hardly be

over-estimated, as it makes the old methods applicable to every heavenly body, immensely widening the field of observation.

The correction of altitudes for change of declination I claim as a fourth improvement of nautical-astronomical methods; the first improvement being the practical solution of the problem of finding latitude and time by simultaneous altitudes of any two heavenly bodies, insuring instantaneous results, including an abbreviation formula confining repetitions to one; the second improvement being to find the longitude by the right ascension of the moon; the third one to find latitude and time by equal altitudes near the meridian, and by the greatest altitude of a heavenly body, taking into account the change of position and the change of the declination during observations, showing the errors of the old methods in use (See MARINE RECORD of April 19, May 17, November 8, last). All these improvements are called for by the ever-increasing speed of vessels demanding increased facilities and faultless methods for finding the exact position of a vessel at sea.

By the application of the correction for change of declination, things are entirely reversed. Up to this time results obtained by the method of five arcs had to be verified by Sumner's method; but now, results by Sumner's method, the defects of which have been mentioned before, will require verification by the improved method of five arcs, in fact, rendering Sumner's method and the method by lines of position superfluous and obsolete.

JOHN MAURICE,
Civil Engineer and Nautical Expert.

Chicago, November, 1900.

COAL STATISTICS.

The imports of coal in 1899 amounted to 1,393,640 long tons, against 1,273,706 tons in 1898. The exports of coal in 1899 amounted to 5,752,150 long tons, against 4,503,405 tons in 1898. The exports of coke in 1899 amounted to 280,196 long tons, against 199,562 tons in 1898. The imports of coke in 1898 amounted to 44,584 long tons and in 1899 37,888 tons. Statistics of the production of coal in 1899 have been compiled by Edward W. Parker, statistician of the United States Geological Survey, as follows: Anthracite coal, 53,944,647 long tons, bituminous coal, 172,608,917 tons; total production of coal in 1899, 226,553,564 long tons. For the first time the production of coal by the United States exceeded that of Great Britain in 1899, preliminary statistics of the production of Great Britain in that year claiming only 220,085,303 tons.

We estimate our total consumption of iron ore in 1899 at 25,200,000 long tons, against 21,193,000 tons in 1898, 17,375,000 tons in 1897, 15,525,000 tons in 1896, 17,253,000 tons in 1895, 12,235,000 tons in 1894, 13,480,000 tons in 1893, 17,400,000 tons in 1892, and 15,740,000 tons in 1891. Our imports of iron ore in 1899 amounted to 674,082 long tons. This quantity subtracted from the quantity consumed leaves 24,525,918 tons as the probable consumption of domestic iron ore in 1899, against 21,005,907 tons in 1897 and 16,885,030 tons in 1897. Our small exports of iron ore not considered in the above estimates.

RELEASING DEVICES FOR SHIPS' BOATS.

The Marine Journal is much disturbed because of the receipt by the various transportation companies of a circular calling their attention to sections 4488 and 4489, Revised Statutes, which in plain language require all vessels carrying passengers to be equipped with releasing devices for boats. We do not agree with our contemporary in thinking that it is important to know by whom this circular was sent out. It is sufficient to know that it calls attention to an obvious neglect of an important statutory requirement, and one upon which in a large measure depends the protection of the lives and property of those citizens who travel for business or pleasure.

There is another statute to which attention might have been called at the same time: This is section 4491, Revised Statutes, giving to the Board of Supervising Inspectors of steam vessels the sole and absolute authority to decide as to whether any device offered fulfills the requirements of the law as set forth in sections 4488 and 4489. This relieves owners and captains of responsibility and places it directly upon the inspectors. Have they done their duty? Have they sought diligently as they should for such a device as the law requires? The officers of the U. S. Navy Department, the U. S. Revenue Marine, the U. S. Lighthouse Board, the U. S. Coast Survey, the U. S. Army Transport Service, and individual owners in large number, have had no trouble in finding such a device. Why not then the Board of Supervising Inspectors? We understand that this Board have decided that there is no device available under the law. If their opinion is correct, the judgment and experience of the officers comprising the boards of the several maritime deparments of the government, as well as the many practical seaman who have used and endorsed a satisfactory device, are at fault. But if their opinion is not correct, and the device we refer to is useful and available, then the responsibility for all loss of life resulting from a failure to use it, rests upon the shoulders of the Board of Supervising Inspectors of Steam Vessels.

It seems to us that there is a plain neglect of duty in this matter, and that whoever has called attention to the requirement of the statutes has done a public service. The expense involved in equipping each vessel with apparatus for releasing boats is in effect devoted to a life saving device; the cost of applying it is a trifle, whatever it may be it should not be suffered to delay for one moment the enforcement of a beneficent law.—Army and Navy Journal.

CALUMET RIVER LITIGATION.

Another test of the priority of jurisdiction between the United States government and the city of Chicago on property fronting on the Calumet river in South Chicago, is asked in a bill filed in the United States circuit court. The Calumet Grain & Elevator Co., has petitioned the judges of the court to restrain the city from interfering with the construction of a dock on the river. The bill is similar to that filed in the federal court a few days ago by the executors of the estate of the late Columbus R. Cummings. The Cummings estate and the property of the elevator company adjoin each other near Ninety-fifth street with a total frontage of 800 feet on the river.

The docks along the Calumet are wearing out and recently the Secretary of War granted a permit to the elevator company to rebuild them. Work which was previously stopped was started again on Oct. 29, and the police interfered. They would not let the contractors proceed with the construction because they had no permit from the department of public works of the city. An agreement was made between the Hausler & Lutz Dredging and Dock Co., who have the contract, and the city not to make any further attempt at continuing the work until the matter should be settled in court.

The river is wide at the point in contention, and is a natural winding basin. It is the desire of the city officials to maintain the basin. The question of riparian rights enters into the fight, as does also the right of the government to exercise exclusive jurisdiction over a river that is entirely within the boundaries of the state. The act of the government in 1890 which requires that the approval of the Secretary of War be on all government permits enters into the conflict also. If the dock line, as desired, is not established, boats, 350 feet long can turn in the basin and enter the thirty-five feet passageway between the railway bridge with ease. If the dock is built, boats of a length of 280 feet will find it hard to turn.

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 11TH DISTRICT,
DETROIT, MICH., November 22, 1900.

REMOVAL OF LIGHT-VESSELS AT CLOSE OF NAVIGATION, 1900.

Notice is hereby given that Poe Reef Light-Vessel No. 62, at the Lake Huron entrance to the Straits of Mackinac will be removed from her station on or about December 10th.

Lake Huron Light-Vessel No. 61, and Grosse Pointe Light-Vessel No. 10, will be kept in position as long as ice permits.

LAKE SUPERIOR, MICH.—Notice is hereby given that the light and fog-signal at the Stannard Rock Light Station, Lake Superior, cannot be depended upon during the present season of navigation after November 25, 1900.

By order of the Light House Board:

J. C. WILSON, Commander, U.S.N.,
Inspector 11th District.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 11TH DIST.,
CHICAGO, ILL., November 27, 1900.

ELEVEN FOOT SHOAL LIGHT-VESSEL, NO. 60.—Notice is hereby given that Light-Vessel No. 60, on Eleven Foot Shoal, Green Bay, Michigan, will leave her station for the winter on December 5th, 1900.

This notice affects the List of Lights of the Northern Lakes and Rivers for 1900, page 98, and the List of Beacons and Buoys for 1900, page 133.

By order of the Light-House Board:

F. M. SYMONDS, Commander, U. S. N.
Inspector 9th L. H. District.

Refusal to Accept Abandonment.—A consignee who refused to accept uninjured goods, and unjustifiably endeavors to abandon them to the insurer who refuses to accept the abandonment, cannot hold the insurer liable for any loss sustained by the forced sale of the goods. Washburn & Moen Manufacturing Co. vs. Reliance Marine Insurance Co. (Limited) 21 Sup. Ct. Rep. (U. S.) 1.

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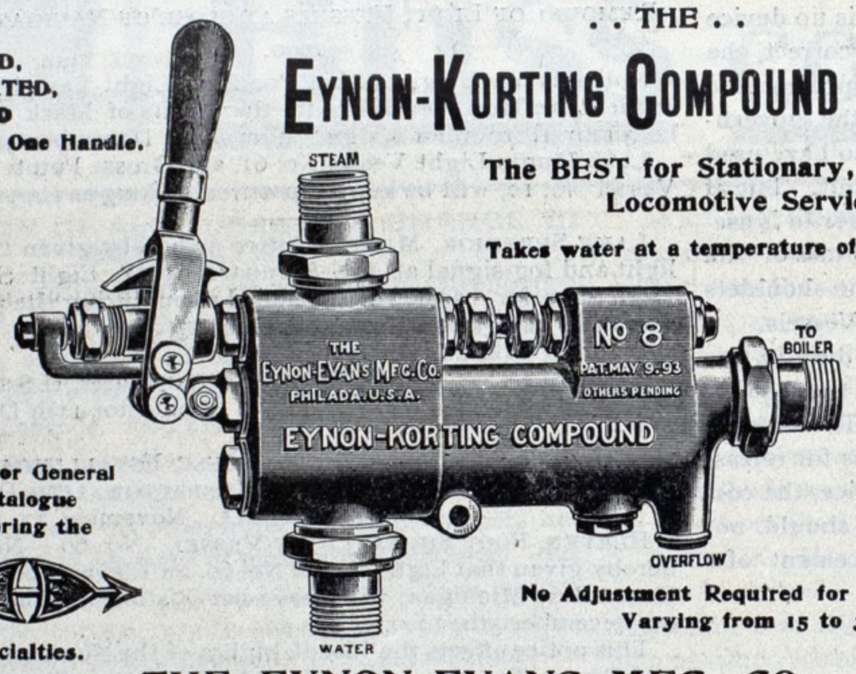

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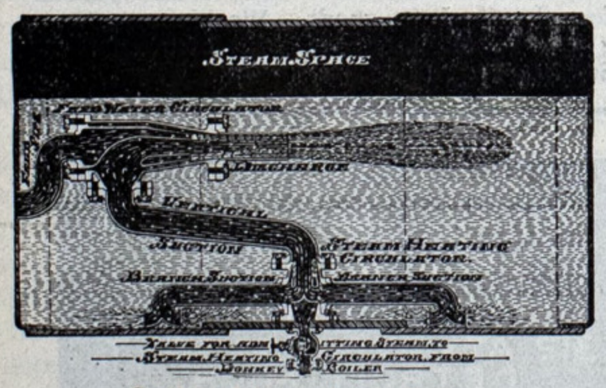

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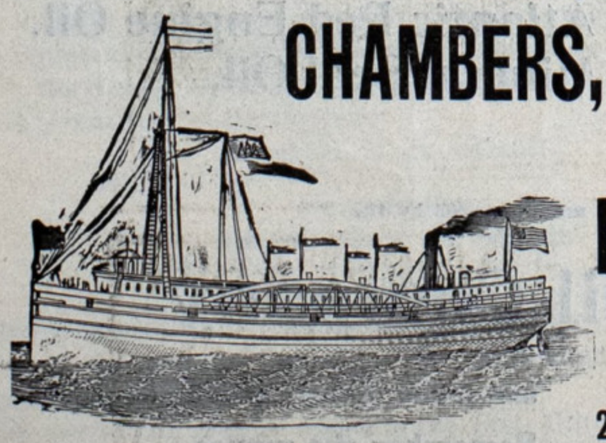

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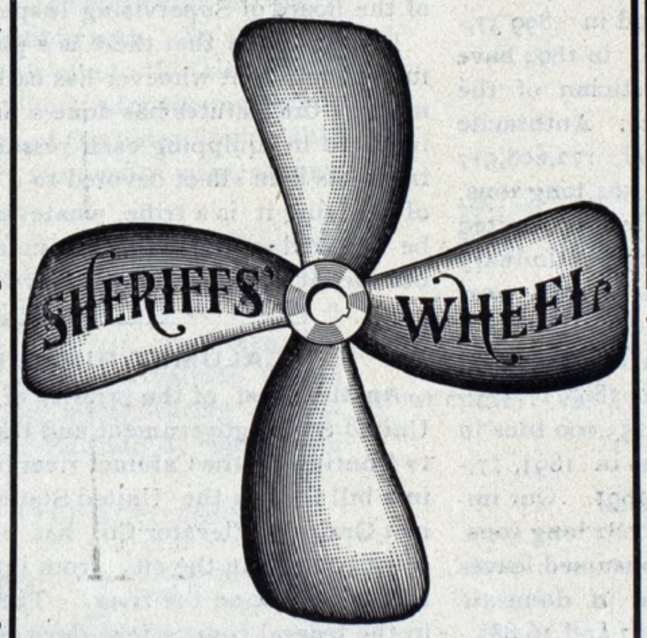

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Change of Time C. T. & V.—B. & O. R. R.

Effective Sunday, November 25th, the following change of schedule will be made.

Leave Cleveland for Akron, Canton and Valley Junction 7:15 a. m. instead of 7:25 a. m.; 3:25 p. m. instead of 3:35 p. m.

For Pittsburgh, Washington, Baltimore, Philadelphia and New York 3:10 p. m. instead of 3:25 p. m.

For Chicago 9:35 p.m. instead of 9:40 p m. All other trains remain the same.

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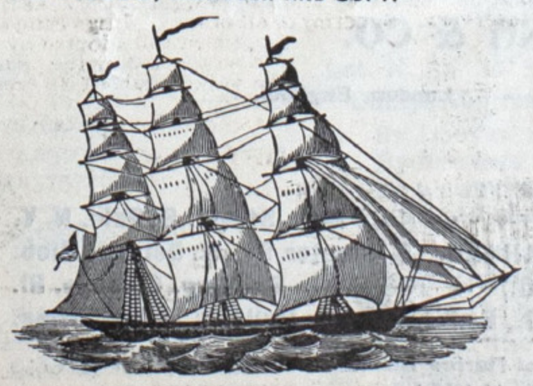

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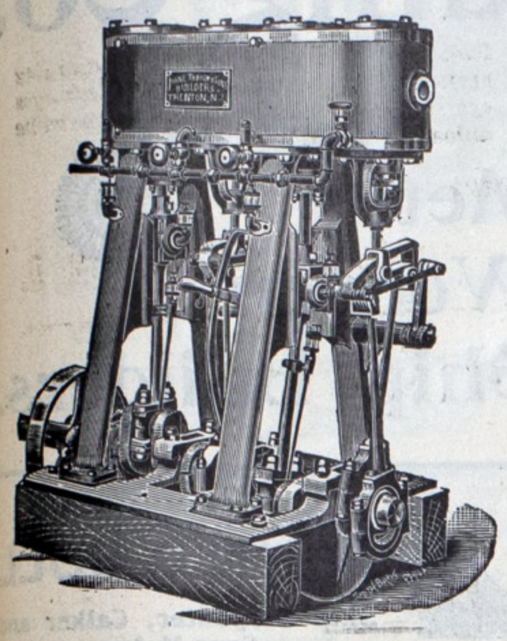

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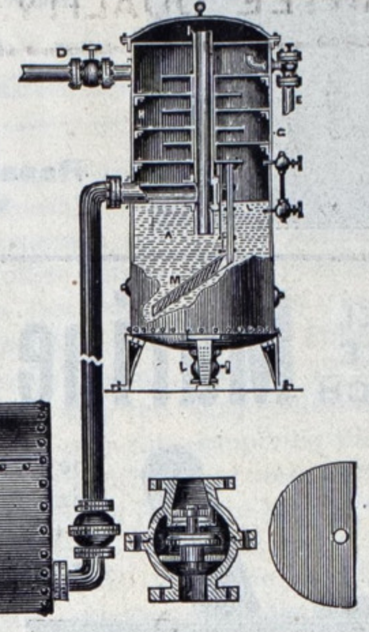

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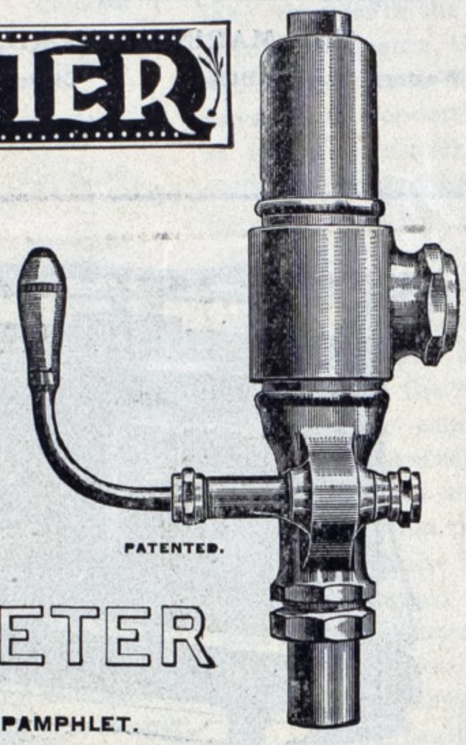

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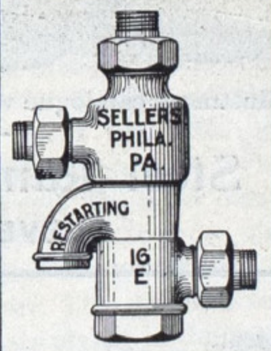

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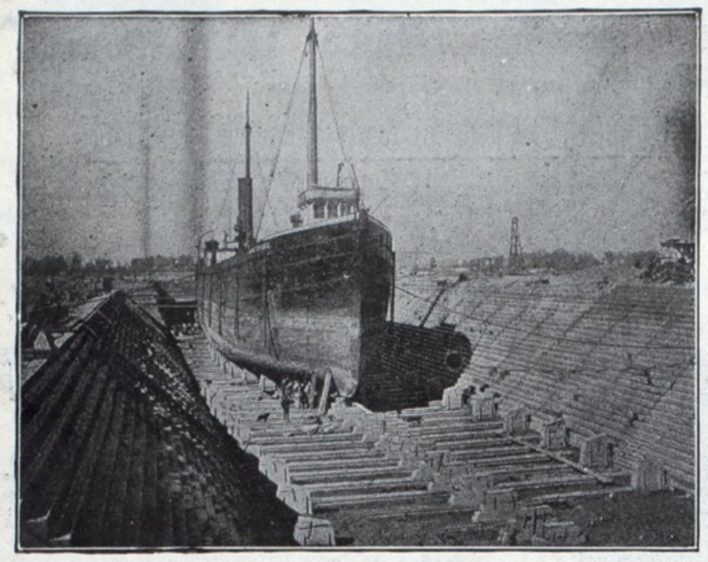

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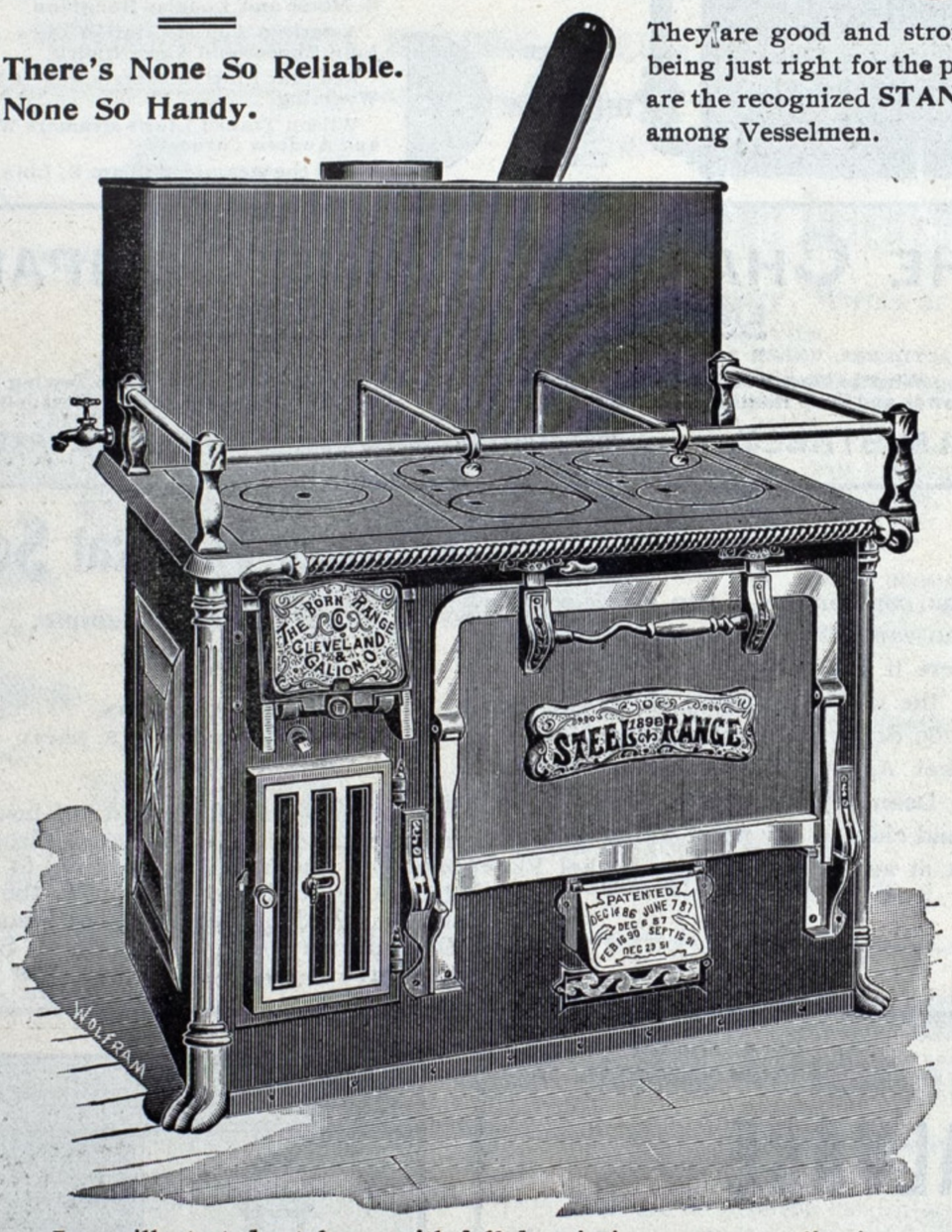

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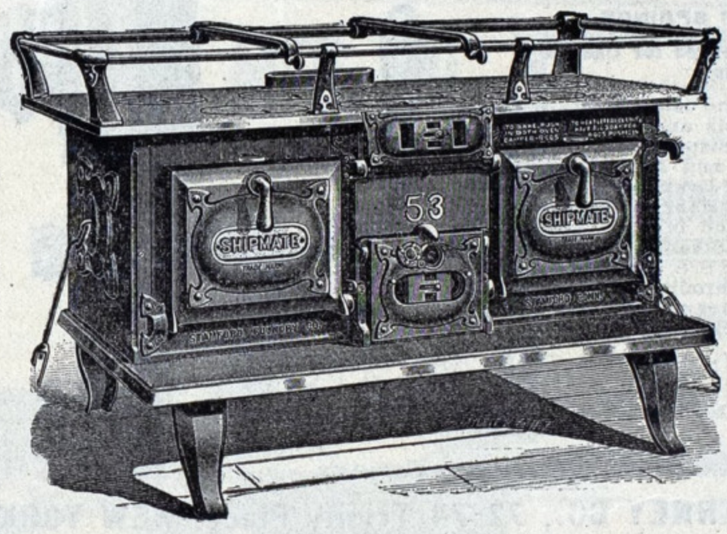

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